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REPORTS

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CONSULS OF THE UNITED STATES.

VOL. XXVI.

APRIL-JUNE, 1888.

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REPORTS

FROM THE

CONSULS OF THE UNITED STATES

No. 92.—APRIL, 1888

WASHINGTON:
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CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 92.—APRIL, 1888.

CONSULAR PROTECTION IN MOROCCO.

[ENCLOSURE No. 8 IN DESPATCH No. 87, FROM CONSUL LEWIS, TANGIERS.]

In enclosing the list of protegés of this consulate, I have the honor to report that, following the instructions of your Department, both verbal and written, and the well known policy of our Government, I have been able since my arrival here in March last to entirely reorganize our system of consular protection, and to bring its operations entirely within the provisions of existing treaties. The number of persons that on my arrival here I found enjoying United States consular protection, official and unofficial, was upwards of 800. The names of the official protegés had been in part forwarded to your Department. The class of unofficial protegés was by far the larger, and a single example will suffice to show what form of protection they enjoyed. About a year ago the inhabitants of a village near Tangier, famed for boar hunts, having been ordered by the Sultan to pay a tax, refused to do so on the ground that their village was an American colony. On reference to this consulate the Basha was informed that the inhabitants of this village, numbering about 300, were employed as boaters, etc., at the boar hunts organized in connection with this consulate, and must therefore be exempt from taxation, as all employés of the consulate were under United States protection.

Unofficial protection under this consulate has been entirely abolished, and the natives enjoying United States consular protection are those (and only those) named in the list, copies of which I have forwarded to your Department and to the Moorish Minister for Foreign Affairs at Tangier, according to your instructions and the requirements of the treaty. The protegés comprised in this list consist of three classes: (1) Natives employed in the consulate; (2) Natives protected in consideration of their former services to the

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United States; (3) Agents and buyers in Morocco for United States citizens engaged in wholesale importing into or exporting from Morocco.

I shall take the liberty of reporting fully to you my views on this question, prefacing my remarks by stating frankly that I came here strongly imbued with impressions unfavorable to the protegé system by reason of the scandalous abuses that had grown up under the system, and prepared to adopt sweeping measures of reform. But at that time I knew nothing of the total absence of law in the government of this country, and of the consequent necessity for some form of protection, a necessity which residence here cannot fail to demonstrate to an unprejudiced observer. As regards the first class of protegés mentioned—namely, natives employed in our consular service—it is necessary, in the absence of capable United States citizens, to employ at the various ports of Morocco native consular agents; and these, in order to maintain their proper influence and make their office respected by the local authorities, must, like their colleagues, the agents of other consulates, be assisted by subordinates as interpreters and messengers, for whom the protection of the United States is essential to the performance of their duties without fear or favor. The protection of these men is adequately provided for by the treaties and subsequent concessions.

The second class of protegés, above referred to, is composed of former employés. These are men who, as consular agents or interpreters, have merited the gratitude of our Government. Should those who have thus served us in the past be seen to suffer from the discontinuance of their protection at the close of their service, it would be difficult for us in the future to secure any suitable subordinates from the native population of Morocco, their task at best not being an easy one to perform. An old Moor, who has been occasionally employed without protection to write in Arabic official communications from the consulate to the Sultan, has preferred rather to lose his employment than to write, even in my name, anything affecting influential men ministers of the Sultan. I have been forced on several occasions into complaining to His Sheriffian Majesty of the systematic obstructions and delays interposed by the Moorish Minister of Foreign Affairs. This official, whose salary is $300 a year, could not live if all the consular abuses in Morocco were done away with, so that his support of my efforts to reform could hardly be expected. The minister for foreign affairs in Morocco, it must be understood, is not clothed with the power and authority of a secretary of state for foreign affairs of a civilized country; consequently all matters of importance have to be submitted to the Sultan, who retains in his own hands the control of most of the affairs entrusted in civilized countries to a minister.

The protection, therefore, of persons employed in the important work of communicating with the Sultan cannot well be dispensed with, and those on our list appear to be honest and trustworthy men, no complaints being made against them. This class also is also amply provided for by existing treaties.

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The third class of protegés, the agents and buyers for American importers or exporters, is one which will increase or decrease as business with Morocco fluctuates. The list being subject to frequent changes a protegé of to-day may revert to Moorish subjection to-morrow. It is in relation to this class that abuses have been most rife, and that the present treaties are defective. A native of Morocco who has fraudulently or otherwise obtained United States naturalization may return to Morocco and reside here for a period of five years, engaging in the business of importing or exporting at times, but nominally, and frequently only with Gibraltar, Cadiz and Malaga, and still claim under present treaties the privilege of having protected for him two agents at every port of Morocco; and it is by no means uncommon for the principal to be salaried by his employé; whereas a *bona fide* business enterprise of however great magnitude is hampered in Morocco by its inability to employ more than two protected agents at each port. Without protection it would be absolutely impossible for an American firm to introduce our products here, or to export from Morocco raw materials. From the unbounded rapacity, coupled with the irresponsible power of the native governors, no unprotected native can be safely entrusted with any person's money or property; and protection in this case is as much the protection of the Sultan against his own corrupt officials as of the foreign merchant; for abolition of protection would be followed by a series of abuses far worse than anything previously known in Morocco, and imaginary as well as actual robberies and assaults would be the basis of endless claims of foreigners which are seldom possible when agents are protected by honest representatives of foreign governments.

The continuance of consular protection does not involve any expense to the United States, as the consular court more than pays its way. Even were protection abolished, the consular court would have to be maintained so long as there were any interests of United States citizens in this country, as those interests could never be left to the mercy of the corrupt and venial local judges administering Mohammodan law which excludes the evidence of any Christian.

The only reasonable objection that the Sultan of Morocco can have to protection (so long as his subjects hold intercourse with foreigners), is that his revenues are interferred with. To meet this objection I would respectfully recommend, that in any future revision of the Treaties, all foreign subjects and protegés residing in Morocco should be made liable to pay some certain and regular taxes to the Sultan to be agreed upon by all the Powers, and to be collected by the various consulates from those under their respective jurisdictions, and to be transmitted by the consul to the Sultan, so that His Majesty's Exchequer might receive the full benefit free from the well-known peculations of his subordinates, and the tax payers be free from any attempts at extortion. But it would obviously be unfair for the dependents of any nation to have to pay such taxes unless those of all other nations had to do the same.

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A few years ago, in response to the Sultan's complaint, the taxes claimed by him were actually collected by Her Britannic Majesty's officials from all British subjects and protegés, and the Sultan was notified that the sum of these taxes would be paid to him when like taxes were paid by the subjects of other powers. The first nation to decline to pay was Spain.

I would also suggest that some rules might with advantage be laid down by the Department of State to further regulate the granting of protection to the native agents of United States merchants, so as to make such protection obtainable only for the purpose of exporting from Morocco to the United States or *vice versa*, and so as to prevent agents from acquiring United States consular protection for the purpose of carrying on commerce with other foreign countries exclusively; and also, to prevent the appointment of agents from being made a traffic of, for the sole purpose of getting for merely nominal agents the benefits and exemptions of protection; and that such rules should be sufficiently precise as to leave no option with the consul that would lay him open to the possibility of a charge of favoritism.

If these two points could be adjusted it would be safer to leave intact in other respects the present Treaties, the result of a century's experience, rather than incur the risks of new Treaties proving defective or impracticable risks, amounting in an unchangeable country like this, almost to a certainty.

THE RUSSIAN PETROLEUM TRADE.*

The production of crude petroleum in Russia in the past year shows a large increase over any former year. In a previous report from this consular agency you were informed that no attempt was made to keep any accurate record of crude production at Baku, but the amount of production was estimated from the output of refined oil and illuminating distillate, of which fairly correct statistics are obtainable, upon a basis of 3½ gallons crude for every gallon of the aforesaid products, to which is added the crude oil shipped. In this manner it is ascertained that the crude oil production in 1887 was over 45,000 barrels, of 40 gallons, for every day in the year, *i. e.*, the amount of crude used was over 45,000 barrels per day, and no one knows how much was lost, but there is no doubt that the loss was at least 20 per cent, and that the actual amount of crude taken from the ground during the year was nearer 55,000 barrels per day than 45,000. Of course, 20 per cent allowance for oil wasted will seem to an American to be very liberal; but if the manner in which oil is conducted to reservoirs from wells, the construction of reservoirs (described in a previous report), and the great number of flowing wells are considered or understood, this estimate will not appear so liberal. In 1887 the amount of crude oil wasted was undoubtedly much greater than in any previous year because of the number of flowing wells,

*The previous reports of Mr. Chambers were printed in CONSULAR REPORTS No. 74, p. 400; No. 75, p. 549: and No. 79, p. 522.

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and the great productiveness of some of them. From one well it is said that more than 1,000,000 barrels were lost. This well, called the Mining Company well, was struck in August at a depth of 790 feet, and flowed the full size of the pipe (12 inches) to a height of 200 feet above the derrick for sixty-nine days. It was some days before the oil from it could be directed into reservoirs, and then there were no reservoirs of sufficient capacity to hold its production, and notwithstanding nearly all the Baku refiners connected their pipe lines to the reservoirs into which the oil was going, and kept their pumps going day and night, the whole country seemed to be overflown with the oil, and there is no doubt that at least half its production was lost. The lowest estimate I have heard of the production of this well for the sixty-nine days is 3,000,000 barrels, and had the well flowed only oil this would be very reasonable, but it produced much more sand proportionately than the average Baku well, although all wells there produce immense quantities of sand with the oil. Some one-story stone buildings about 15 feet high, within a hundred yards of the well, were completely buried out of sight in sand from the well, and an area of probably ten acres around the well was covered from 1 to 15 feet with sand. The production of the well, after sixty-nine days, declined to 200 or 300 barrels per day, and all the efforts to make it produce profitably again have been unsuccessful.

There has been no new territory discovered in the past year, and very little effort has been made to find any, notwithstanding the fact that the theory advanced by some of Baku's eminent scientists that the complete exhaustion of the present developed territory is very near at hand, seems to be gaining supporters. One of these scientific gentlemen now says that the Balakhani-Sabunchi territory will not last more than three years, in which opinion it is said he is backed by some of the people having the heaviest financial interests in the trade.

But the support given to this idea by those financially interested is apparently not strong, costing nothing, and the sincerity of it is open to doubt; because, notwithstanding that the exhaustion of this territory before new territory is discovered may mean financial ruin to all the refiners, they make no effort to find other territory. The Baku geologists who prophecy the early exhaustion of the territory make a very plausible showing of figures, basing their estimates upon past production, increasing depth of drilling, etc. But the depth of the last oil-bearing stratum, and the number of such wells as that of the Mining Company that may be found are unknown quantities in the very interesting and important problem of the future production of petroleum in Russia.

Owing to the large production the price of crude at wells was very low the whole of the past year, the extremes being 1¾ to 7¼ cents per barrel of 40 gallons, but the average for the year was not more than 3½ cents per barrel. At present the price is between 6 and 7 cents per barrel, which is rather high for midwinter, when more than half the demand is shut off owing

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to Volga navigation being closed, but does not seem to be due to a scarcity of oil, because there are many good wells at Balakhini and Sabunchi, although no very large ones according to native ideas.

FREIGHTS AND TRANSPORTATION.

The refining capacity at Baku, owing to the fact that the business was very profitable, was materially increased during the year. The limited transportation facilities of the railway to Batoum maintained a heavy premium upon tank-car capacity for Batoum shipment, and a syndicate formed for the purpose of controlling home markets, insured a fair price for Caspian Sea shipments. These circumstances, together with the low price of crude, gave the refiners a margin of ¼ to ½ cent per gallon on Caspian Sea shipments, and from 1 to 1¼ cents per gallon upon refined shipped to Batoum. The last allotment of tank-cars to refiners (made regularly by a committee formed for that purpose to secure equal distribution) is for the first three months in this year, and shows 149 refineries, with an aggregate annual capacity of 625,000,000 gallons refined oil. This estimate of capacity was made for the distribution of tank-cars for Batoum shipment, the refiners receiving tank-cars in proportion to their capacity; and as the heavy premium upon tank-cars accrues to refiners' benefit, they naturally made the best possible showing, so that there is little doubt that it is greatly exaggerated. But as the shipment of refined oil and distillate from Baku in 1887 did not exceed 200,000,000 gallons, there is also no doubt whatever that the refining possibilities of Baku are very much in excess of present requirements.

With an apparently unlimited supply of crude oil, so great a refining capacity and a profitable market for refined, it is clear that the limited transportation facilities of the railway are the chief obstruction to a rapid increase of export. Since December, 1886, railway transportation has entirely governed the price of oil at Batoum. Refined oil for Caspian Sea shipment during the past year has brought an average price f. o. b. Baku of about $1\frac{3}{10}$ cents per gallon, while the same quality of oil f. o. b. cars for Batoum averaged $2\frac{3}{10}$ cents per gallon. At the beginning of 1887 the railway company had 1,250 tank cars in service, and there were no private tank cars on the road. The price for refined f. o. b. cars at Baku then reached $3\frac{1}{5}$ cents per gallon, a premium of almost 2 cents per gallon on tank-car capacity. This encouraged refiners to put cars of their own upon the railway, and permission was granted refiners by the government railway control to place over 4,000 private tank-cars upon the road. Notwithstanding the protests of the railway management that they could not move promptly and regularly more than 500 or 600 private tank-cars, over 1,000 were put in service before December 1st; 500 more are due before March 1st, and owing to a great decline in the volume of grain freights (due to depressed condition of the grain market) the additional cars have been satisfactorily handled, and the railway is now delivering 3,500 to 4,000 tank-cars per month at Batoum, against 2,000 per month a year ago. As the possibilities of export from Batoum have not kept pace with the increase in railway transportation, the

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situation here is exactly the opposite of a year ago, when there was no oil here, and a demand for much more than the railway could deliver, for now the Batoum tankage, aggregating about 23,000,000 gallons, is about full, and the monthly receipts here are probably 3,000,000 to 4,000,000 gallons in excess of the shipments, with little prospects of an early increase in export facilities, and a certainty of increased rail deliveries from the new tank-cars daily coming into use. Under such circumstances it is not at all surprising that the market seems weak, with a steady downward tendency; that sales a few days ago show a difference of less than ¾ cent between Caspian Sea and Batoum shipment at Baku, and that all talk of pipe lines over the Suram Pass for refined oil has ceased, notwithstanding permission was granted by the government ten months ago for five such lines, and all were to be constructed immediately. The increase in the oil carrying capacity of the railway might seem only temporary were it not for the fact that the work upon the Suram tunnel (the railway grade at this point, being 238 feet to the mile, has been the great obstruction to a greatly increased traffic) is progressing very rapidly, and I am assured upon the best possible authority that the tunnel and accompanying improvements can be completed by September or October, 1889. This will not only insure the permanency of the present carrying capacity of the railway, but will still further increase it.

A PROPOSED PIPE-LINE.

A pipe-line for crude, from the Caspian to the Black Sea, is and always will be a subject for the trade to discuss; but that it will ever get any further than talk I do not believe. The reports of Russian newspapers are fully as unreliable and conflicting regarding this matter. Within the past three months the newspapers have stated that a concession for a pipe-line would be granted soon; that the committee of ministers had decided not to grant such a concession; that they had granted the concession; that bonds had been filed by the acceptors of the concession; that by-laws and regulations of the company formed for the construction of the line had been approved by the ministry; that the Czar, upon final reference of the matter to him by the committee of ministers, decided that no concession for the construction of a crude pipe-line should be granted, and the last is that a concession has been granted to the head of Rothschilds' petroleum business for a crude pipe-line from Baku to Batoum. I shall leave it to those who are interested in the matter to select the truth from this mass of contradictions.

My attention has just been called to the following items from Russian newspapers of February 4:

According to the latest newspapers a final agreement between the larger Baku refiners engaged in the export of illuminating oils was concluded a few days ago for the purpose of constructing a pipe-line for refined oil from Mikhailovo over the Suram Pass on the Trans-Caucasian Railway to Kviril, and the work will be completed in the first half of this year.

The latest newspapers say that the reports of Russian and foreign papers that the concession for the construction of a pipe-line for crude oil in the Caucasus had been given to the

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Paris firm of Rothschilds are based upon delusions. On the very best authority, the "Bourse News" has heard that the concession has been obtained by M. Ephreusie, the son-in-law of the Paris Rothschilds, who is at present endeavoring to raise the necessary capital for the enterprise, viz., 36,000,000 francs in Paris, but is meeting with no success.

This is the first allusion to a Suram pipe line for refined oil which I have seen or heard for several months, and as the project seems to have been revived, it will not be out of place to describe its nature.

As heretofore explained, the heavy grade on the railway over the Suram Pass has been considered to be the great obstruction to a material increase in the carrying capacity of the railway. About one year ago it occurred to the petroleum shippers that a pipe line for refined oil, about 38 miles in length, between the station Mikhailovo, at the east end of the pass, and Kviril, at the west end of the grade on the Trans-Caucasian Railway, would overcome quickly and economically the difficulties of the heavy grade, so that refined oil could be pumped from Mikhailovo to Kviril, and the capacity of the railway to and from these points would be probably three times as great as it possibly could be over the pass. Consequently permission was obtained from the Government for the construction of a number of such lines, with the understanding that all such permission might be revoked upon the completion of the Suram tunnel. At that time it was not believed that the tunnel could be completed inside of three or four years, and for some months it was asserted positively that at least two, and perhaps more, 5 or 6-inch pipe lines would be constructed at once. About three months ago, however, all talk about Suram pipe lines ceased, and it was generally believed that the unlooked-for increase in transportation by the addition of private tank-cars to the railway's rolling stock and the certainty of the early competition of the Suram tunnel had killed the projected pipe lines, and it is now exceedingly probable that the revival of these projects is only newspaper rumor.

There is much more possibility of truth in the report regarding the concession for a pipe line for crude from Baku to the Black Sea.

TANKS, CANS AND CASES.

There are now regularly in the Batoum trade eleven tank steamers, with an aggregate annual carrying capacity to ports for which they are chartered, of about 70,000,000 gallons. The can and case manufacturing capacity of the port is at present not more than 30,000,000 gallons per year. The railway cars, apparently, deliver about 150,000,000 gallons per year, so that the tankage being full the difference, or 50,000,000 gallons, will have to be exported in barrels to keep up with receipts, and with present facilities that is impossible. It is reported that many new tank steamers are being built for the trade, and there is no doubt that the can and case manufacturing capacity will be doubled soon, so that it is quite possible that by the end of the year the exports will be fully up to rail receipts. Anyone who has seen the progress made by the Russian petroleum trade in the past two years, in the face of such difficulties as high freights, limited markets and losing

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prices abroad, cannot doubt that these people will progress more rapidly now under circumstances equally as favorable as they were then unfavorable. Now tank steamers have reduced their freights to the minimum, and the recent shut-down movement among American producers, or other cause, has advanced prices all over Europe to such a figure that any one in commercial matters should be able to do a very profitable export business in Russian oil. The exporter has everything in his favor at present, for in addition to an advancing market abroad, he has a declining market to purchase upon, as it is not believed that the export from Batoum can be increased soon enough to prevent the wiping out of the tank-car premium, which means very cheap refined here. At present refined is quoted f. o. b. Batoum nominally at about $3\frac{3}{8}$ cents per gallon in bulk, and $\frac{7}{10}$ of a cent of this price is premium on tank-car capacity.

TAXATION OF OIL.

On January 27th (15th old style) the collection of an internal tax upon all illuminating products of petroleum manufactured in Russia was commenced.

Illuminating oils of a specific gravity, between .0730 and .0830, inclusive (at 60° Fahrenheit), and a temperature of flash under 113° Fahrenheit by the Abel-Penn apparatus, are subject to a tax of 40 kopecks per pood (at present rate of exchange about $3\frac{3}{8}$ cents per gallon). Refined of a specific gravity greater than .0830 to .0835, inclusive, and temperature of flash 113° F. and higher, pays 30 kopecks per pood (about $2\frac{1}{2}$ cents per gallon). Refined of a less specific gravity than .0830, but with temperature of flash higher than 113° F., is subject to the lower tax, *i. e.*, $2\frac{1}{2}$ cents per gallon. Refined of a lower temperature of flash than 81° F. is not allowed to be shipped from refineries. At the same time this excise was inaugurated the duty upon foreign illuminating oils was raised from 60 kopecks gold per pood to 1 rouble gold, *i. e.*, about $15\frac{1}{2}$ cents, per gallon. This excise upon Russian oil will be collected at refineries, and as it will be refunded upon all oil exported it can have little influence upon export. Its object is to increase the Russian revenue, the Government expecting by it to add about $3,500,000 to its annual income. It is too soon after the inauguration of this measure to intelligently predict its effect upon the trade, but it is apparent to all that it will necessitate a great increase in capital to carry on refining, and thus materially assist the Rothschilds, who are the capitalists of the Russian petroleum trade, in obtaining a monopoly of the export business, to which end, by means of five-year ironbound contracts with refiners for all railway transportation obtainable by them (refiners), they (Rothschilds) are rapidly and successfully working.

I append statistics of the exports and home trades for the years 1886 and 1887, which I believe to be very correct.

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Shipments of Petroleum products from Batoum in 1886 and 1887, (in gallons.)

To—		Illuminating Oil and Distillate.	Crude, Residuum Lubricating Oil and Distillate.	Total.	Decrease.	Increase.
Austria-Hungary	1886	.....	.....	13,290,970	.....	
	1887	21,206,590	175,500	21,372,090	.....	8,081,120
Belgium	1886	2,037,750	1,377,800	3,415,550	.....	
	1887	4,042,500	2,351,400	6,393,900	.....	2,978,350
Bulgaria	1886	49,000	.....	49,000	.....	
	1887	265,300	.....	265,300	.....	216,300
Burmah	1886	.....	.....	.....	.....	
	1887	738,000	....	738,000	.....	738,000
China	1886	.....	.....	500	.....	
	1887	620,620	.....	620,620	.....	620,620
Egypt	1886	1,678,460	500	1,978,960	.....	
	1887	4,322,570	.....	4,322,570	.....	2,643,610
England	1886	1,907,500	1,980,185	3,887,685	.....	
	1887	6,012,170	661,650	6,673,820	.....	2,786,135
France	1886	1,708,400	1,649,135	3,357,535	....	
	1887	246,000	2,394,100	2,640,100	717,435	
Germany	1886	1,490,000	1,300,850	2,790,550	.....	
	1887	2,003,535	1,721,700	3,725,235	.....	934,685
Greece	1886	418,500	1,750	420,250	.....	
	1887	.....	.....	.....	420,250	
Holland	1886	.....	120,000	1,250,100	.....	
	1887	315,000	326,500	641,500	.....	521,500
India	1886	1,250,000	100	1,250,100	.....	
	1887	7,743,350	5,000	7,748,350	.....	6,498,250
Italy	1886	2,181,000	1,078,200	3,259,200	.....	
	1887	2,009,600	342,850	2,352,450	906,750	
Malta	1886	.....	.....	.....	.....	
	1887	120,000	.....	120,000	.....	120,000
Roumania	1886	4,604,410	81,150	4,685,560	.....	
	1887	669,250	54,200	923,450	3,762,110	
Spain	1886	308,000	.....	308,000	.....	
	1887	.....	285,000	285,000	23,000	
Turkey	1886	10,476,290	7,905	10,484,195	.....	
	1887	9,061,000	76,550	9,137,550	1,346,645	
Tunis and Algiers	1886	372,000	.....	372,000		
	1887	.....	.....	....	372,000	
Denmark	1886	300,750	.....	300,750	.....	
	1887	.....	.....	.....	300,750	
Other countries	1886	3,469,065	1,096,950	4,566,015		
	1887	....	.....	.....	4,566,015	
Total Export	1886	.....	.....	54,236,320	.....	
	1887	.....	.....	67,969,935	12,414,955	26,148,570
Russia	1886	.....	.....	13,523,330	.....	
	1887	9,661,200	102,850	9,764,050	3,759,280	
Total Shipments	1886	.....	.....	67,759,650	.....	
	1887	.....	.....	77,733,985	16,174,235	26,148,570

Total increase in shipments in 1887 over 1886, 9,974,335; increase of *export* 1887 over 1886, 13,733,615 gallons.

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Shipments of Petroleum products from Baku via Caspian Sea, in 1886 and 1887, (in gallons.)

Products.		To Russia—	Increase.	Decrease.	To Persia—	Increase.	Decrease.	Totals.
Illuminating ...	1886...	88,744,725	.....	.....	955,024	.....	.....	89,699,749
	1887...	112,196,875	23,452,150	.....	938,450	.....	16,574	113,135,325
Residuum	1886...	161,973,930	.....	.....	319,720	.....	.....	162,293,650
	1887...	197,821,515	15,847,585	.....	208,290	.....	114,430	178,029,805
Crude	1886...	12,369,380	.....	.....	30,185	.....	.....	12,399,565
	1887...	14,848,070	2,487,990	.....	635,250	605,065	.....	15,483,320
Lubricating....	1886...	1,755,575	.....	.....	.....	.....	.....	1,475,575
	1887...	4,553,125	3,077,550	.....	125	125	.....	4,553,250
Other products	1886...	1,114,285	.....	.....	188	.....	.....	1,114,473
	1887...	873,130	.....	241,150	7,815	7,627	.....	880,945
Totals.....	1886...	265,677,895	.....	.....	1,305,117	.....	.....	266,983,012
	1887...	310,292,715	44,615,820	.....	1,789,930	484,813	.....	312,082,645

PROSPECTS.

The prospects of the Batoum petroleum exporters for 1888 were never brighter, with greatly increased railway transportation, declining prices at Baku, a steady downward tendency in the value of Russian paper money, and high and advancing prices in the markets of the world. If they do not reap a rich harvest this year, they will have lost a golden opportunity, such as is rarely seen in any business. It is expected here that the Batoum exports this year will be over 150,000,000 gallons, almost double those of 1887, but I do not believe it is possible for them to exceed 120,000,000 gallons. A very good beginning has been made, however, as the January shipments were over 10,000,000 gallons, and the steamer charters for cases January, February and March, loading for India alone, are nearly 6,000,000 gallons.—BATOUM, *February 1, 1888.*

JAMES C. CHAMBERS,
Consular Agent.

AMERICAN AND RUSSIAN PETROLEUM IN MARSEILLES.

The imports of crude and refined petroleum into this consular district during the past two years have been as follows:

	Port of Marseilles.		Port of Cette.	
	1886.	1887.	1886.	1887.
American:	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
Crude.....	101,011	56,959	103,614	121,193
Refined.....	565	6,090	6,647	7,428
Russian:				
Crude.....	22,826	1	None.	None.
Refined.....	16,248	13,950	None.	None.

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While, therefore, the imports of American crude oil at Marseiles show a falling off of nearly half, as compared with those of 1886, the importation of Russian crude at this port has ceased altogether. While the importations of refined Russian kerosene at this port declined 14 per cent. those of American kerosene increased from 565 barrels in 1886 to 6,090 in 1887. At Cette, where the imports of crude naphtha are more than double those of Marseilles, Russian petroleum, both crude and refined, are unknown, the entire receipts being of American origin.

Considering the general dullness of the petroleum trade everywhere during the past year, the foregoing exhibit for the district of Marseilles is thought to be exceedingly favorable. Instead of losing, American petroleum, both crude and refined, is regaining in this city the ground which had been lost during recent years in the competition with Russia. It is, in fact, no longer possible to import and refine Russian naphtha in France, in competition with the vastly richer and superior crude material from the United States, and this situation will continue as long as the present import duties on crude oils are maintained in this country.

The "Standard Russe," the powerful corporation which was organized here several years ago to purchase and work the oil-producing districts of Ilskie, in the Kouban Caucasus, has closed up and sold out the wreck of its affairs, and the refiners in this district look entirely to our country for their supplies of crude.

Arrangements are now in progress for a largely imcreased importation during 1888, the only point still in controversy being that of freights. There are generally no return cargoes here for petroleum ships from America. A few go to Spain for ores, to the Greek islands for "cliff stone," or take return cargoes of salt from Cette or Hyeres; but as a rule they are obliged to return home in ballast.

It remains to speak of

LUBRICATING OILS,

in which material Russian competition has become most formidable and threatening to American interests. There were imported at Marseilles during the past year 14,692,887 pounds of lubricating oils, of which 10,524,472 pounds, or nearly three-fourths, came from Russia, 3,519,168 from the United States, and the remainder from England, Germany, and Italy; although all, or nearly all, of the small proportion received from the three last named countries came originally from either Russia or the United States.

The reasons which give Russian lubricating oils precedence in French markets are sufficiently obvious. While American naphtha is far richer than the Russian in kerosene, the Russian crude oil contains more of the viscous properties essential to a good lubricator. Russian machine oils are therefore relatively cheaper than the American. The best American lubricating oils, say of 915° density, are equal in quality to the best of Russian origin; but whereas the American oils of that grade cost here, duty paid, 42 francs per 100 kilograms, Russian of equal quality can be had in any quantity for 34 francs. Such a difference of price is of course decisive.

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In all the lower grades the same difference of value obtains; and not only this, but the cheaper American lubricating oils are said to contain a trace of paraffine, which, when applied to machinery heated above about 95° F. forms a glaze or coating that interferes with perfect lubrication.

On the other hand, American oils have the advantage of being well manufactured, and of being uniform and reliable in quality. Grades and brands are definitely established, and however large the quantity ordered of a trustworthy American dealer, every barrel will be found to be exactly what it pretends to be. This is not true of Russian lubricating oils. They are prepared by a great many different makers, more or less ignorant and inexperienced, and though called by the same name, and nominally of the same grade, the quality is often variable and uncertain.

Whatever superiority Russian lubricating oils possess over American oils of equal cost, is due entirely to the superior viscosity of the crude material from which they are made, and for which no skill in manufacture can compensate without unduly increasing the price.—MARSEILLES, *January 31, 1888.*

FRANK H. MASON.

RUSSIAN PETROLEUM IN THE EAST.

Taking into consideration the fact that the United States have hitherto had the monopoly of the sale of kerosene oil in China, it may be of interest to learn that the oil merchants of Baku, have resolved to start a company for the supply of naptha and kerosene to the ports of Japan, China and Siberia. Shops for the sale of lamps are to be established at Bladivostock and Petropanlovsk. From these lamps will be sent to the retail shops in the countries named. The steam ship "Castle Eden," lately arrived at Calcutta with a cargo of 73,000 cases of kerosene oil from Batoum. This is the first importation into Calcutta of the product of the great Caspian oil field, but imports have been made into Bombay for some years. I understand that large importations are made from Baku into England.—PEKING, *January 12, 1888.*

CHARLES DENBY.

RECENT TARIFF ON BREADSTUFFS IN SWEDEN.

During the past three years there have been continuous and determined efforts made by the advocates of protection in this country, to impose a duty on breadstuffs brought into this kingdom. A year ago, at the last session of the Diet, a measure of that kind did successfully pass both chambers by a majority of ten; but so much dissatisfaction was expressed throughout the country that the king dissolved the Diet and ordered a new election, at which

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the protectionists were defeated, which summarily settled the matter for that year. When the Diet assembled this year, however, it happened that, through means of a technicality in the election, twenty-two protectionist members from the neighborhood of Stockholm were seated, thus again giving the protectionists a majority in both chambers. The Breadstuff Tariff Bill was brought up, and, with all haste possible, to prevent an anticipated large importation of breadstuffs, pushed through both chambers by the following vote: Yeas—First chamber, 73; second chamber, 114; Nays—First chamber, 59; second chamber, 104; majority, 24. The King has approved the bill, and proclaims that it shall go into effect on February 14, 1888.

The new tariff is as follows:

Unground.	Per 100 kilos or 220⅓ pounds.					
Wheat and rye	Kroner	2	50	öre	or	$0 67
Maize and barley	"	2	50	"	"	67
Peas and beans	"	2	50	"	"	67
Oats	"	1	00	"	"	26.8
Malt	"	3	00	"	"	80.4
All not specified	"	2	50	"	"	67
Ground, etc.						
Bran	"		30	"	"	08
Vegetable meals	"	4	30	"	"	1 15.2
Groats and meals	"	4	50	"	"	1 20.6

[1 krona = .26.8 cents; 100 öre = 1 krona.]

During the week there have been large importations of flour, rye and rye meal from Russian, German and Danish ports in order to escape the new tariff; and it is thought that many vessels loaded with breadstuff will be prevented from arriving before the law goes into effect by the serious ice obstructions, caused by the unusually severe winter.—GOTHENBURG, *February 14, 1888.*

ERNEST A. MAN,
Consul.

TARIFF CHANGES IN NORWAY.

The Norwegian Storthing yesterday unanimously voted to raise the duty on crushed maize, or Indian corn, which up to this time has paid a duty of 50 öre per 100 kilogram, to 15 öre per kilogram.

The reason of the Government's proposition to the Storthing, the design of which was to raise the duty only to 10 öre per kilogram, is that the brewers of this country have lately commenced to employ a method, which has long been in use in England, viz., to use unmalted maize as a substitute for malt, on which a duty of 23.5 öre per kilogram is now levied. It has been found by trials that 225 kilograms of maize, which cost here 37.60 kroner, give the same result in brewing as 150 kilograms of malt, the cost of which is 66 kroner.

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The new duty on maize, which will go into effect to-morrow, February 10, must be said to be a prohibitive one, and will prevent the importation of the article from the United States for the said purpose.

The Storthing in its meeting of yesterday resolved to raise the duty on tobacco, which resolution was sanctioned by the King and went into effect at once.

	New rates per kilogram.	Old rates per kilogram.
Tobacco stems	kroner, 1.75.	kroner, 1.25
Leaf tobacco	kroner, 1.75.	kroner, 1.25
Snuff	kroner, 2.10.	kroner, 1.50
Cigars and cigarettes	kroner, 3.60.	kroner, 2.75
Tobacco for smoking, chewing, and other manufactured tobacco	kroner, 2.10.	kroner, 1.50

I will add that the yearly importation of tobacco into Norway is calculated at—

	Kilograms.
Of leaf tobacco	1,671,000
Of cigars and cigarettes	61,900
Of snuff and other manufactured tobacco	13,700

CHRISTIANIA, *Feb. 9–23, 1888.* GERH. GADE,
Consul.

TOBACCO IN EGYPT.

At its session, on the 25th of this month, the Egyptian Legislative Council approved the proposition of the Khedivial Ministry to impose a tax of £ E. 30 (thirty Egyptian pounds) on every feddan ($1\frac{1}{20}$ acres) of land cultivated in Egypt in tobacco.

The proposition covers fractional parts of a feddan, and hence is directed against production for family uses as well as for market consumption. The proposition will speedily become a decree.

Of course a tax equivalent to $157.50 per acre on bare production is prohibitory, and hereafter even the poor fellaheen of Egypt must buy tobacco, which is universally consumed, from some other country. About thirteen thousand feddans is the annual growth of tobacco in Egypt, and hence, at a production of five hundred pounds per feddan, it will take six million five hundred thousand pounds of imported tobacco to make up the coming deficiency on home production.

The import tax upon tobacco will be about twenty-four cents per pound. The cheapest tobacco in the east, which may be drawn upon to supply the enforced Egyptian demand, is found in Syria, but this will be undersold by a Grecian product, which may be bought at about twenty cents per pound. Another year will bring about the necessity for the foreign supply, and the question is, who will meet it?

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I have examined the market reports of the United States, and it appears to me entirely possible for our tobacco growers to meet the Egyptian demand with profit to themselves. The only obstacle would seem to be, that American tobacco may be too strong for the Egyptian taste. But the consumption of tobacco in Egypt is alone through smoking, and knowing the ingenious methods by which our people so aptly meet the requirements of almost any taste, I cannot doubt their ability to satisfy Egyptian palates in this respect. It is very certainly worth the trial, and I earnestly hope steps may be taken, which may lead to opening up a trade, most beneficial to one of our most important industries.

I shall be pleased to answer inquiries concerning the matter presented.—CAIRO, EGYPT, *December 27, 1887.*

JOHN CARDWELL,
Consul General.

RAILROADS IN AUSTRALIA.

I have the honor to inform you that this is considered an important day in the Colonial history of Australia, being the opening day of a continuous coast line of railway from Adelaide, in South Australia, via Melbourne, in Victoria and Sydney and Newcastle, in New South Wales, to Brisbane, in Queensland, a distance of nearly one thousand eight hundred miles. Enclosed I send an article from the Sydney *Daily Telegraph* descriptive of the completion of the connecting links between Sydney and Newcastle, and between the latter city and Brisbane.* Newcastle is thus brought into daily communication, both by land and water with Sydney, the metropolis of this colony. The distance by sea is about 75 miles, and overland about 99 miles.—NEWCASTLE, NEW SOUTH WALES, *January 16, 1888.*

THOMAS M. DAWSON,
Commercial Agent.

TREATY PORTS IN CHINA.

The localities in China at which foreigners have the right to reside, to procure property, and to do business are the following: Shanghai, New-Chwang, Tien-Tsin, Chefoo, Ichang, Hankow, Kiukiang, Wuhu, Chin-Kiang, Ningpo, Wênchow, Foo-Chow, Tamsui, Takow, Amoy, Swatow, Canton, Kiungchow, Pakhoi.

To these, if any steps were taken to that end, Nanking might be added under the existing Treaties. Should the present efforts to navigate the upper Yangtzy by steam prove successful Chunking will probably be opened to the world.

The information given in this condensed form is sought from me in many letters from my fellow citizens. Possibly it may conduce to the convenience of the Department in answering similar inquiries.—PEKING, *January 16, 1888.*

CHARLES DENBY.

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THE TELEGRAPH IN FORMOSA.

I have the honor to inform the Department that this port now has telegraphic communication with the Island of Formosa. A submarine cable has been laid across the Formosa Channel from Keelung in Formosa, to Foochow on the mainland. A similar cable connects Formosa with the Pescadores Islands, while a land line of telegraph to connect Taiwanfoo in South Formosa with the north end of the Island, is now under construction. This brings Formosa into telegraphic communication not only with the Chinese Empire, but with Europe and America.

The Provincial Government of Formosa has accomplished this more for its military importance than its commercial necessity, at the same time it will be one of very considerable advantage to trade. — AMOY, *January 3, 1888.*

W. S. CROWELL,
Consul.

SUGAR EXPOSITION IN BRAZIL.

IMPERIAL LEGATION OF BRAZIL, WASHINGTON, *March 22, 1888.*

MR. SECRETARY:

I have the honor to inform Your Excellency that His Excellency the Minister of Agriculture, Commerce, and Public Works has addressed a communication to this legation, requesting it to lend its aid to an exhibition of sugars, which is to be held at the capital of the empire in the month of August next. This exhibition has been organized by an association of planters, manufacturers, and dealers in sugar, known as the *Centro de Industria e Commercio de Assucar* (*i. e.*, "Center of Sugar Industry and Trade"), which hopes to meet with coöperation in foreign countries among persons interested in the cultivation of the sugar-cane and its cognate industries.

The main object of this exhibition will be the comparative examination of the various kinds of sugar now in existence, and of the processes and machinery used in their manufacture; also the collection of statistical information concerning the manufacture and trade in sugar, and concerning the fiscal systems in force with regard to it in the various countries.

Thinking that this intelligence may be of interest in this country, I have the honor to bring it to the knowledge of Your Excellency, to whom I repeat the assurances of my highest consideration.

ITAJUBÁ.

His Excellency THOMAS F. BAYARD, *Secretary of State.*

TARIFF CHANGES IN INDIA.

By an act of the Supreme Legislative Council of British India, published on the 19th instant, the tariff act of India was so amended as to impose an additional import duty of 8 annas (23 cents) per maund (82⅔ pounds) on salt imported into India, with certain exceptions, which are noted in the enclosed copy of the Official Gazette of India, of date of January 19, 1888.

And as a further matter of public interest I have to advise the Department that on the 27th instant a bill was introduced in said Legislative Council by Hon. Mr. Westland to authorize the Government of India to levy a customs duty of 5 per cent. on petroleum.

I think it probable that the bill will become a law, and if so shall promptly advise the Department. In view of the fact that about 96 per cent. in value of our exports to India consists of petroleum, I consider the

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levying of a tariff on that article (which has hitherto been on the free list) as a matter of special concern to American exporters of kerosene.

For your further information on this subject I enclose an additional extract from the *Englishman* newspaper, published here, of the 28th instant.

In this connection I wish to take the liberty of adding that our British cousins in India seem to be very much interested in our plethoric exchequer, and the further question as to how it was brought about. It has occurred to me that our colonial cousins may have concluded that if too much tariff has resulted in an unwarranted surplus of revenue, perhaps by a moderate indulgence in that line of policy they might be relieved of a serious deficit which just now seems to be troubling them. — CALCUTTA, *January 31, 1888.*

DEPARTMENT OF FINANCE AND COMMERCE — NOTIFICATION — ACCOUNTS AND FINANCE — SALT — CALCUTTA, THE 19TH JANUARY, 1888.

In exercise of the powers conferred by section 7 of the Indian Salt Act, 1882, and in supersession of notifications by the Government of India in the Department of Finance and Commerce, Nos. 1449, dated 10th March, 1882, and 751, dated 28th April, 1882, the Governor-General in Council directs that on and after the date of this notification the duty to be paid on salt manufactured in or imported by land into British India shall be as follows:

(*a*) In the case of salt manufactured in or imported by land into Lower Burma, one rupee for each maund of 82⅔ pounds avoirdupois weight; and

(*b*) In the case of salt manufactured in or imported by land into any other part in British India, except that portion of the territories administered by the Lieutenant-Governor of Punjab, which lies west of the river Indus, two rupees eight annas for each maund of 82⅔ pounds avoirdupois weight.

NEWSPAPER EXTRACT.]

At the meeting of the Supreme Legislative Council yesterday, the Hon. Mr. Westland introduced the bill authorizing Government to levy a customs duty of 5 per cent on petroleum, and in doing so he made an important statement regarding the financial position of Government and the conditions which rendered it necessary to add to the existing sources of revenue. In reality, the proceedings took the form of a debate upon the substance of the forthcoming budget, and it is a pity that, in so far as the increase of the salt tax is concerned, this debate has an *ex post facto* character. It is not disputed for a moment that Government was acting strictly within its legal rights in announcing the increase of the salt duty by means of a "Gazette Extraordinary;" the only question is whether this course was expedient. No doubt it would have been a departure from established precedent had Government produced the measure in council as a legislative project, but in view of the very general advocacy of some such procedure that has made itself heard of late throughout India, it might have been politic, it certainly would have been popular, had precedent been set aside, and had Government merely gone through the form of submitting the proposal in council for the purpose of discussion. We regret that we cannot regard as unanswerable the objections urged yesterday by his excellency the Viceroy to the adoption of such a course. "To have given a kind of notice, which some people seem to have desired, would have been merely to have benefitted a certain number of individuals at the expense of the community at large." This statement cannot be held to meet the case, unless we are to suppose that there is something altogether different in the conditions of India and England in such matters. The home government would create a profound sensation were it to announce fresh measures of taxation before submitting them to Parliament; but, of course, they have no such power. Still it cannot be said that the procedure which has been established in England as the result of centuries of practice is either improper or unwise. And, at the same time, we fail to recognize those

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peculiar conditions which it may be possible and safe to propound prospective schemes of taxation in England, and which render such a course in India impossible. So far, at least, as regards the manner in which the proposed taxation would have been received had it first been submitted in council, we can judge from the speeches delivered at yesterday's meeting. Raja Peary Mohan Mukerji may be regarded as a fit spokesman for the native community, and his testimony was given with no uncertain voice. "The additional duty upon salt, which his excellency the Viceroy had lately imposed by an executive order, had given the Government of India about £1,500,000, and it was at the same time a measure which had given very general satisfaction, as one which would not touch to an appreciable extent even the poorest in the land." This statement was received by Lord Dufferin with extreme satisfaction, and it may be accepted as a complete answer to the sentimental maundering of a certain portion of the London press.

The address in which the Finance Minister laid bare the pressing necessities of the Government can hardly be regarded as satisfactory, although it really adds little to our previous knowledge of the situation. The heavy losses by exchange which the Government has had to face in the past few years, added to the large outlay on defences and on the Burma campaign, have swamped the revenues, which have been further impoverished by a fall in the price of opium and a diminution in railway receipts. The last budget in which the position could rightly be described as satisfactory was that of 1883–'84, and ever since we have been going gradually backward in a financial sense. The Finance Minister rapidly traces the history of the past ten years ending with 1884–85, the year which Sir Auckland Colvin described as the last of the fat kine. He then gives an abstract of the accounts of 1884–'85, and of the estimates of 1887–'88, for the purpose of comparison. "The abstract will be very easily traced back into its component figures in the published accounts. Its main peculiarity is, that besides showing the expenditure heads *net* instead of gross, I have separated the exchange figures, so that I may show, first, how the comparison would have stood had there been no alteration in the exchange, and I have then shown in a separate figure the extra charge falling upon us on this account. It will be seen that the totals up to which the statement works show that, whereas in 1884–'85 we had fifty-one millions of revenue, of which forty-eight millions went in expenditure and three millions in exchange, we find ourselves in 1887–'88 with three millions more of revenue, namely, fifty-four millions in all; but as exchange now costs us five millions instead of three millions, the three millions better revenue afford us only one million for real increase of expenditure." It is then shown how civil as well as army expenditure has increased, and how the various burdens of the Government have brought it to the sad necessity of extending the scheme of taxation. All this is the prelude to the petroleum bill, which is introduced at last somewhat brusquely. As we have already said, however, the tax seems to us a just and intelligent one, and we have no doubt that it will be regarded in this light throughout the empire.

The bill referred to, after amendment providing for a *specific* duty of 6 pie, or ½ anna, per gallon, instead of the *ad valorem* duty above referred to, was enacted into a law on the 10th instant. It will be observed, however, from the enclosed copy of said act, that what is commonly known as lubricating oil, if it will pass the fire test therein specified, is admitted free of duty.

Although it is considered that the specific duty of 6 pie, or ½ anna, per imperial gallon is a somewhat higher tariff than that of 5 per cent *ad valorem*, as originally proposed in the bill, yet it is generally thought by those interested with whom I have had an opportunity of conferring that this new duty on petroleum will not have the effect to materially diminish its importation.

With the amount of this duty, which has already been added to the selling price of the oil on hand, it is yet a much cheaper illuminant than manu-

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factured gas, or even the vegetable oils—such as cocoa-nut, castor, and mustard oils—which were extensively used in India for purposes of illumination prior to the importation of kerosene for that purpose.—CALCUTTA, *February 20, 1888.*

ACT NO. 2 OF 1888.

An Act to provide for the levy of a customs duty on petroleum.—Whereas it is expedient to provide for the levy of a customs duty on petroleum. It is hereby enacted as follows:

1. To the second schedule to the Indian Tariff Act, 1882, the following shall be added:

Petroleum, including also the liquids commonly known by the names of rock oil, Rangoon oil, Burma oil, kerosene, paraffine oil, mineral oil, petroline, gasoline, benzol, benzoline, benzine, and any inflammable liquid which is made from petroleum, coal, schist, shale, peat, or any other bituminous substance, or from any products of petroleum, 6 pies per imperial gallon.

Exception.—Petroleum which has its flashing point at or above 200 degrees of Fahrenheit's thermometer, and is proved to the satisfaction of the customs collector to be intended to be used exclusively for the batching of jute or other fiber, or for lubricating purposes.

And whereas the provisos to section 37 of the Sea Customs Act, 1878, do not apply to goods to which a rate of duty is not already applicable; it is further enacted as follows:

2. The rate of duty applicable to petroleum, of which the bill of entry is delivered, within the meaning of section 37 of the Sea Customs Act, 1878, to the customs collector, under section 86 of that act, after the passing of this act, shall be the rate of duty specified in the second schedule to the Indian Tariff Act, 1882, as amended by this act.

KEROSENE IN INDIA.

For the Indian fiscal year ended March 31, 1886, the total imports of kerosene oil (for illuminating purposes), were 17,461,875 gallons, valued at rupees 6,936,612 = to $2,469,433.87, valuing the rupee at $0.35.6 as fixed by the Director of the U. S. Mint for 1886. "Other sorts"—probably lubricating principally, is set down for the same year at 2,767,475 gallons, valued at rupees 1,076,495 = to $383,200.18.

For the fiscal Indian year ended March 31, 1887, the total importation of illuminating oil (kerosene) from the United States, increased from 17,461,875 (in 1886) to 29,144,765 gallons, valued at rupees 11;361,510 = to $3,942,443.97 counting the rupee at $0.34.7 which was its value as fixed by the Director of the U. S. Mint for 1887. For this year (1887) the kerosene, or mineral oil classified as "other sorts," fell off to the trifling amount of 177 gallons, caused probably by the over stocking of the market with that species of oil.

The increase during the fiscal year last past of 11,682.890 gallons, or over 66 per cent., is quite encouraging if it can be maintained. In view of the fact that the value of the imports of kerosene during the year ended March 31, 1887, is 97.2 per cent. of the total value of all imports from the United States to India, it becomes very important that this trade should be carefully fostered and protected, especially by those directly interested.

If we lose our export trade to India it will result in the loss of the import trade to the United States so far as American ships are concerned, as they cannot afford to come here in ballast.

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The only way in my judgment that our exporters of kerosene can maintain the supremacy which they have acquired in the oil trade in the East is by shipping none but good oil in good condition. In this connection I deem it proper to state, that in the month of June last, two cargoes of oil arrived at this port from New York per British ships "Corby" and "Othello" which were reported to be in a bad and unmerchantable condition. While it did not devolve upon me in my official capacity to institute a survey or other official inquiry into the condition of these cargoes, I did take occasion to visit the oil warehouses or sheds while the cargo of the "Corby" was being discharged and found the oil to be in a very deplorable condition so far as the leakage of the tins was concerned.

However, Messrs. Albert Sieger and Wm. Adye of this city were designated by the parties interested here in the oil cargoes of the respective ships referred to, to make a survey with a view to ascertain the extent and causes of the damaged condition of said oil, etc. These gentlemen, at my request, kindly furnished me for my information with copies of their reports, which I enclose.

As to the cause or causes of the bad condition of these cargoes, I do not feel competent or called upon to speak; but I am satisfied that the *condition* of the "Corby's" cargo is not exagerated in the report of the surveyors.

In conclusion I wish to submit a few observations on the subject of Russian competition (which has recently been assuming a more formidable aspect than heretofore) for the oil trade of India. On this subject I copy from the Government report of the trade of India for 1886–'87, the following:

From Asiatic Russia, that is to say from Batoum, were received last year some consignments of kerosene oil. These were the first and trial consignments of the Baku oil to India. Quantity, 1,577,392 gallons; value, 670,428 rs. This is trifling compared to the enormous quantities annually received from the United States, and is said that in Karachi at any rate the importations met with no special favor. But it is the beginning of what may prove a formidable competition with American oil, and perhaps the creation of an extensive trade with Russia. The only other competitor in the supply of mineral oil to India which Russia has is India herself, and here the conditions are such that it will be difficult for India oil (if it should be found in large quantities) to compete with foreign oil struck near the seaboard of the United States and Russia.

Since the compilation of the report from which the above extract is taken, Russian competition has become much more active than heretofore, and for the past seven or eight months largely increased quantities of Russian oil have been shipped to different ports in India from Batoum. I have made careful and thorough inquiry as to the quality of this Russian oil as compared with that shipped from the United States, and with the exception of the unfortunate cargoes of the "Corby" and "Othello," hereinbefore referred to, I find that the Russian oil is of a materially inferior quality. It gives out more or less smoke and requires better ventillation to burn it properly than is afforded by the ordinary burners in use here. Yet, on account of the extreme poverty of a large majority of the native population in India who have of late years adopted the use of kerosene as illuminant instead of

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the inferior vegetable oils formerly in vogue, cheapness of price with many of them is a greater inducement to purchase than superiority of quality. And in this way and for these reasons Russian oil is gaining a foot-hold in India. I am also advised that unscrupulous dealers are in some instances transferring inferior Russian oil into empty American tins, which are very abundant in this country, and selling the contents as American oil.

I have recently received a letter from our consular agent at Rangoon, bearing date the 3d instant, calling my attention to the fact that a firm of oil merchants in Rangoon are putting inferior Russian oil in "Devoe & Co.'s" tins and selling the same as the American oil of that brand. Notwithstanding the increasing competition from Russia and the fraudulent practices of retail venders, above alluded to, if proper and available steps are taken to suppress the fraud it is my judgment that we can for many years to come keep the lead in the petroleum trade of this country.—CALCUTTA, *February 28, 1888.*

B. F. BONHAM,
Consul-General.

[EXHIBIT A.]

KEROSENE OIL PER "CORBY."

CALCUTTA, 18th July, 1887.

We the undersigned have been called upon by Messrs. Graham & Co. to act as arbitrators between themselves and Messrs. Johurmull Gujanund regarding a cargo of kerosene oil, bearing Messrs. Lombard, Ayres & Co.'s "Stella" brand, which arrived here per "Corby" from New York on about the 9th June, 1887, Messrs. Graham & Co. being the sellers and Messrs. Johurmull Gujanund the buyers, under a contract dated 15th January, 1887; and after most careful and fullest surveys on the 4th, 12th, and 14th instants, both on shore and in ship's hold, we have unanimously come to the following decisions:

1st. The [oil] cargo is not a fair nor legal tender under above contract.

2nd. The [oil] cargo is decidedly unmerchantable as a whole.

3rd. The [oil] cargo cannot have been shipped in good order and condition.

4th. The very excessive leakage, bad rust, and discoloration of oil is caused by the presence of certain foreign matters hereafter referred to.

5th. The buyers have the option of entirely rejecting the [oil] cargo.

We have come to the above conclusions from the following facts:

There is no question of sea-water damage, as is shown by marine surveyors' reports; neither is there, in our opinion, any question of the cases, tins, or oil having deteriorated or been tampered with in any way whatever, either during or after landing at the port commissioner's go-down at Budge Budge.

At our first survey on the 4th there were 6,000 cases odd already discharged, and we understand that during the landing of these the buyers detected some foreign matter running out of most of the leaky cases, which they reported to sellers.

In our second survey, on the 12th instant, not quite half the cargo was out—say about 24,000 cases.

We then, from what we saw from the large quantity of tins which we opened, and which were found to contain foreign matter in varying proportions, and also from the general outward condition of above portion of cargo, unanimously came to the conclusions stated in paragraphs 1 to 5. We submit the following remarks:

The general condition of that portion of cargo landed up to date of our second survey, as shown by the daily returns of the out-turn, is bad in the extreme.

No precedent is known of a cargo arriving in such a state at this port.

The leakage is very excessive, and pitiable to behold.

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On the 12th we advised, in view of the small accommodation for the wasting oil, to stop the ship's discharge until suitable plant could be got down to Budge Budge to hold same, with a view of refilling tins after repairs, etc., as in our opinion the waste of oil on that date if allowed to continue would have far exceeded what the daily demurrage would be.

The more the bulk was broken apparently the worse became the condition of the cargo.

The cases in the hold appeared to be perfectly clean and sound, but as soon as they were disturbed in the course of the ordinary handling of discharge the leakage commenced, and in some instances it is no exaggeration to say the leak resembled the head of a watering-can.

We would add, however, the cases and tins, on further minute examination, proved to be of poorer quality and strength than other brands. A number of "Stella" tins on being weighed against others of other brands proved to be from one to six ounces lighter.

The boxes also seem not as strong as usual, and we noticed particularly the head or end pieces in a great many instances were of two pieces instead of one, and had been joined together by a rivet, which tends to weaken them.

We herewith also attach the government analyst's report, which coincides with the views we had arrived at, *i. e.*, the rust and consequent excessive leakage from the tins becoming perforated is entirely due to the action of the foreign matter, which above reports prove to be a composition of acid and water. The rust on the outside is all on the top of the tins, around the labels, where the leakage is worst, as the acid has eaten large holes into the tins around and under the labels. All of the tins which were cut open showed rust inside on mostly all sides, chiefly at the bottom.

We consider it our duty, in view of above paragraphs, of the serious damage and leakage already existing, and also of the great amount of probable demurrage, to suggest that the cargo be landed, handled, and sold as speedily as possible to best advantage for all concerned.

[Arbitration fees, R. 300.] ALB. SIEGER.
[Arbitration fees, R. 300.] WILLIAM ADYE.

[Exhibit B.]

KEROSENE OIL PER "OTHELLO."

CALCUTTA, *July* 21, 1887.

At the request of Messrs. Gisborne & Co., we the undersigned attended at the Government sheds at Budge Budge, on the hereafter mentioned dates, to survey the cargo of kerosene oil, "Stella" brand, landed ex "Othello," which, we are informed, the buyer refuses to take delivery of under the terms of a contract dated 15th December, 1886.

We examined on the 6th instance 50 cases; on the 14th instance 275; on the 17th instance 675; total 1,000 cases, and found that out of this number, 367 cases contained in the tins an admixture of oil and foreign liquid matter, which on analysis by the chemical expert to Government, proved to be water and acid. From a number of tins the water came out quite clean, from others, as a thick red fluid, and the quantity of this admixture varied from one-half to five quarts. A considerable number of cases were landed leaking, caused by inside rust, or by rust round the tops and labels, and this damage can only be attributed to careless soldering, as the cases showed no traces of sea water damage. We found further that also tins which on examining showed no trace of water, contained, on being cut right open, a slight sediment on the sides and at the bottom, forming rust spots on the inside of the tins, which ultimately would have formed leaks in the same manner as the leaky portion of the cargo.

The admixture of water or foreign matter was first detected in the cases landed leaky, and as after a preliminary examination it was evident that they all contained more or less of an admixture, we purposely excluded them from the survey, choosing for it only such cases as were apparently quite sound. Of these cases looking outside clean and fresh, a number turned out leaking when opened, and the detailed accounts show the following result:

Sound cases and tins—oil, 615; water mixed, 276. Leaky cases and tins—oil, 18; water mixed, 91.

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From this examination it is quite evident that it is impossible to separate the cases containing oil from those containing the foreign matter, unless the whole cargo be opened. We consider therefore the cargo to be unmerchantable, and not a legal tender under contract, and the buyer entitled to reject the same under clause No. 8 of above contract.

As, however, the buyer has declared his willingness to take delivery of the cargo with an allowance, and as the amount of such allowance has been left to our decision by both the sellers and buyer, we hereby award the buyer our allowance of 5 annas per case on the contract price.

ALB. SIEGER.
W. ADYE.

DEAR SIR: CALCUTTA MEDICAL COLLEGE, 8th *July*, 1887.

With reference to the two samples of liquid removed from certain kerosene oil tins and left with me for examination yesterday afternoon, I have the pleasure to submit the following report:

The samples were contained in soda water bottles and bore no distinguishing labels. Both samples consisted of two layers, an upper one which had the properties of kerosene oil, and a lower one, turbid from oxide of iron. The lower layer of liquid after separation of suspended matter by filteration had the following properties.:

It was acid in reaction. It contained chlorine zinc and minute traces sulphuric acid, lime, iron. Taking the free acid as hydrochlorine acid, spirits of salt, the amount was in one sample 2.47, and the other 3.759 grammes per litre. The total dissolved solids were equal to 6.00 and 9.536 grammes per litre dried at 115° C. The total chlorine free and combined was equal to 2.34 and 3.956 grammes per litre. Assuming the whole of the combined chlorine to have been in combination with zinc, the amount of that salt present would be equal to 4.17 and 7.42 grammes respectively for the two samples.

In my opinion water has been used to wash the tins, in order to remove the soldering fluid which has been allowed to remain in them. The liquid in which the chlorine of zinc, etc., was held in solution, was water. Yours faithfully,

C. I. H. WARDEN, M. D.
Chemical Examiner to Government.

THE GRAIN INTERESTS OF GERMANY.

At a time, and that not very long ago, a very large and important grain trade was carried on between this city and the United States, red winter wheat No. 2, Chicago No. 2, Milwaukee No. 2 being imported in large quantities.

From time to time there were heavy demands for mixed maize.

Mannheim had long enjoyed the profit and reputation of being the grain centre of south, or at least southwest, Germany. On its corn exchange the merchants of Wurtemburg, the Palatinate, Baden, parts of Bavaria and Switzerland met and bargained over grain from Russia, the Orient, and the United States, the grain of America always enjoying a reputation for an excellence superior to that of any other.

Mannheim's geographical situation, at the confluence of two very important commercial streams, the Rhine and the Neckar, gave the city an importance and pre-eminence which its enterprising citizens were not slow to see and use to advantage. To the south, along the Rhine, there is no competitor. The steamers from Rotterdam *must* unload at her docks, the river above being navigable only for barges; along the Necker she sends her

NOTE.—A mark is valued at 23.8 cents, American currency; a kilogram is equivalent to 2.20 pounds.

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commodities on cabled steamboats far into Wurtemburg. With practically unlimited water and railroad facilities she was promised a flourishing future when the blow came which has paralyzed her most important member—the grain trade. Mannheim can buy in the world's markets and have her goods shipped to her warehouses by the cheapest freight way, by water. Steamers from Odessa or New York can unload into Mannheim barges at Rotterdam or Antwerp, whence the grain can be delivered at Mannheim's docks at a cost, including freight charges, transportation, and insurance of 15 to 18 cents per 100 kilograms, or 218 pounds. The southern provinces, although very fruitful and blessed with a good climate, do not produce sufficient quantities of grain to cover the home demand, and are compelled to import. The northern provinces, those of the Kingdom of Prussia, Pomerania, Mecklenburg, in fact all the country bordering on the Baltic Sea, produce now, and have for a long time produced, quantities largely in excess of home consumption. Owing to the absence of duties on grain imports and the high rates for transportation by rail, the grain of the northern provinces found its way into the countries of Scandinavia, to England, and sometimes Belgium and Holland.

AMERICAN WHEAT.

This, in the first instance, was due to a preference on the part of North German millers for American cereals. To break up what bore the appearance of an anomalous state of affairs, the *ex*porting of native and *im*porting of foreign grains, the Government introduced a system of corn-taxes, calculated to remove the anomaly. The first tax was 1 mark, or 23.8 cents per 220 pounds, this was increased to 3 (68 cents) and very recently to 5 marks ($1.19) per 220 pounds. Now it is a notorious fact the English millers preferred North German grain, and just as notorious that the South German millers not only did not, but preferred the grain of the United States. There is said to be a softness about the German product and a hardness about the American, and upon these properties is based the preference in each case. Since the increase of the tax to 3 marks (68 cents) and then to 5 ($1.19) per 220 pounds, the grain trade of South Germany with America and Russia has ceased to exist. American wheat costs about 15½ marks ($3.70) per 100 kilograms (220 pounds), including cost, freight, and insurance to Rotterdam; add to this cost of Rhine freight, 15 to 17 cents plus a 5-mark ($1.19) duty, and American grain appears upon the exchange schedules at 21½ marks ($5.11) per 100 kilograms (220 pounds), the duty alone being about 30 per cent.

Since South Germany must import, she is compelled to take the North German grain, this she can find in her markets at 18 marks ($4.28) per 100 kilograms (220 pounds). This gives the North German grain a 3¼-mark (80 cents) start, or 15 to 20 per cent. advantage. The difference is too great to be overcome by anything like local prejudice or preference; the most that choice permits of is from three-quarters (18 cents) to a mark (23.8 cents) more for American than German grain, but as we have seen, the

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difference is 3½ (80 cents). So long as the duty remains at 5 marks ($1.19) per 100 kiloliters, a resumption of business is not possible, except when crops fail in the Holstein-Pomeranian or throughout the German provinces. It may be mentioned that the grain from the North German provinces is shipped from ports on the Baltic to Rotterdam and Antwerp, thence up the Rhine in barges. Since the exclusion of foreign grains became a fact, the provinces of Middle Germany, notably Prussian Saxony, Hanover, and Brunswick, blessed as they are with a good climate, have begun grain raising for the South German market. Before the tax-time grain from these provinces were almost unknown, competition being rendered impossible by the expenses of rail shipment. Five marks ($1.19) duty on the 100 kilograms (220 pounds) of foreign grain has removed the obstacle, hence the new impulse; besides, the grains produced in these provinces (Rivets) were not liked. Now the South German miller and consumer *must* take them whether he likes or not; for 10 marks ($2.38) a hundred kilograms will come should 5 marks cease to be powerful enough to exclude foreign, and protect home producers.

THE QUESTION OF IDENTITY.

It is required at present that bills, called "bills of identity," accompany shipments of grain from the northern ports (of Germany) to secure their entrance free of duty at the southern ports of the Empire. A movement has been on foot for some time to secure certain allowances under these bills. The Conservative party was expected to bring in and favor a bill before the Reichstag (the national Parliament), giving North German shippers the right to export, as herebefore, their grain to Norway, Sweden, Denmark, England, etc., sell it in those countries, and then to bring back and enter at German ports free of duty as much foreign, American, Russian, or eastern grain as they exported native. Such a bill is at present before the Reichstag. Each party is interested, though it is to be considered the special bill of the Conservatives. It is intended to give bills of allowance, good for six months from date, under which the foreign grains may be entered free of duty. Even at the risk of finding the shrewd traders of North Germany in the halls of South German exchanges, the dealers here are in favor of such an arrangement, satisfied that the northern dealer cannot operate successfully, for a long time, in two places so widely separated. There are those who are in favor of giving North German merchants not only the privilege of bringing in, duty free, as much foreign grain as he took out native, but also a bill or statement which he may sell, transfer, or give away, allowing the party to whom it is sold, transferred, or given to bring into German ports, free of duty, the amount set forth in the bill as having been exported. These bills now become "bills of allowance" instead of "identity," would be gladly bought and used by South German dealers. This would, of course, be a very roundabout way of doing business, but it serves to show how severely the grain trade has been affected by recent tariff legislation. Dealers say the Government will have no just cause to complain, since just as much grain will be imported, consequently as large

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revenues paid to the Government as under the present system. The import will only be measured by the difference between the demand and the home supply. The only important question is one of results, how the thing will work. South German millers say it would work well in two or three ways: (1) in giving the people here their old business and a grain they like, the American; (2) in giving the English a favorite cereal and the North German dealer a trade he once found sure and profitable. Thus far the movement seems to have met but little encouragement from the Government, though business men say it must be settled very soon one way or another.

FLOUR.

Formerly large quantities of American flour found its way into the store-houses of South Germany. Ten and a half marks a hundred kilograms of American flour has changed all this. Another item of interest connected with the flour question is this: The South German miller is brought into sharper competition than he enjoys, with grain ground in the huge mills of North Germany. The necessity to profit the Prussian at the expense of the Bavarian and Badenser is neither an article of political faith nor commercial treaty. Comparisons are being drawn. The blessings of a tariff on bread, or to flow from the same, are neither self-evident nor fast in coming. Mannheim, a city abandoned when Bavaria's kings moved their court and capital to Munich, gained greater wealth and commercial renown by the exercise of talents and industry which were lost in the streets of a gay capital; pride, self-reliance, ever the associates of independent exertion, made her forget, for she no longer needed the royal favor. But all this grew up under free trade in grain. To-day the city is helpless under a blow more terrible than a court removal, nor has her protest been slow or half-hearted. Russian grain, bought January 1, 1888, in London, for 14.30 marks, cost 19.75 in Mannheim. Russian rye sold in England for 8.90 stood at 14.25 on Mannheim's lists. Feed-barley in the one place brought 8.85; here, 12 marks. Oats here, 8.40 to 9.90; in London, 13 to 14.25. In London mixed American wheat brought 11.80; here, 14.25. Life's staff costs 40 per cent. more in this city than in London; and rye, the principal food used here among the masses, is 50 per cent. dearer in Mannheim than in England's capital. Editors are submitting these statistics with the remark that leading articles could not speak plainer, Invention, so often the child of necessity, has followed close upon the legislative enactments by which the tax on grain has been increased. A village newspaper has urged upon the public the necessity of bestirring itself to counteract, as far as possible, the evils feared under the new schedules. A plan is also submitted. The original article has been printed and reprinted all over the Empire. The plan is to keep the surplus of home grain out of the hands of speculators. In this way price movements, sudden changes, etc., are to be avoided. To accomplish this, farmers are to give a statement to the village or town authorities of the amount, weight, color, etc., of their surplus, and

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these statements are to be published weekly in some advertising paper, viz: "The District Advertiser." Thus consumers, above all the millers, will be in a position to buy without the aid of speculating middlemen.

In large districts "unions" may be made, magazines or storehouses built, and the business conducted in the interest of all by regularly appointed and paid agents.

Formerly the producer was certain of the disposal of his surplus at an advantage in places where the grain trade was permanent and well developed. To regain his former position, and to retain it, will necessitate a return to freedom of trade in cereals. Supplementary to the new rates on grain and flour imports, in the extension and threatened increase of the city or community tolls, the so-called Octroi taxes. The farmer finds himself compelled to pay duties on his products before he can enter the cities to sell them. It is not altogether certain that protection to the farmers is to continue as an unmixed evil. Attention is already being called to the dangers threatening from the Octroi or local taxes. German economists, at least here in Baden, Bavaria, and the Pfalz, are wondering how they are to keep on competing with England, Holland, Belgium when the cost of living here is 40 per cent. dearer, because of taxed breadstuffs, than in London, Amsterdam, or Brussels. Between the upper and nether millstones of imperial and local legislation the German workman finds himself. The flourishing trade once done between the Baltic ports and foreign States is gone, the once flourishing trade of South Germany with Russia and America is gone ten years, five will find ships and steamers from the Black Sea, from the whole United States sea front, along the English, Dutch, and Scandinavian coasts delivering grain where the Germans once carried on a profitable trade. When less is consumed, as is certain to be the case, "Germany's grain supply will so increase as to require a disastrous drop in prices, disastrous to those whom the tax aims to protect; but this only after we have lost two profitable sources of trade," those so often referred to, in North and South Germany. Prices will in the end be affected more by supply than artificial legislation. Large supply, small prices; small supply, large prices; moderate supply, moderate prices. To-day the large land owner is in a great measure benefited, knowing in his soul that things must change, he will sell out his grain-fields at increased values, still conscious that he will be able to buy them back bye-and-bye, should he desire to do so, at a fearful discount.

After all, in the long run Germany would have done better, say business men, had she gone on with all her other plans of progressive politics, colonization, etc., and let the tax on breadstuffs alone. No commercial treaty, however favorable, can make up for the losses expected to result from the new toll. The new duties will not benefit a whole class, but a very small part of one class. Land owners who measure their wheat fields by the square mile will have no cause to complain, but small farmers who add cow-keeping, hog-raising, a hennery, etc., to their method of living will suffer a great deal when they come to purchase the amounts necessary to price off their

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demand. It was successfully demonstrated in Parliament by a well-known and distinguished agricultural member that the large farmers needed no assistance, and that small farmers would be injured by the system proposed. To the statement that lands given over to wheat culture were not paying because of constant depression of prices and increase in the cost of production, the member referred to submitted figures showing that in one case a farm of 500 acres showed a total of 23,702 marks for its wheat, rye, barley, oats, and rape sales for 1881, and 24,091 marks for the year 1886, a balance in favor of the latter year of 389 marks. The fall in price was more than made up for by the increased product. Now the cost of production during the same time had decreased, as may be seen from the following figures, taken from the books of the farm of which we are speaking. The average yearly cost of production was, from 1871–1875, 10,428 marks; 1876–1880, 10,609; 1880–1885, 10,100. The explanation of this is to be found in the necessities produced by competition, one of the results of which was the introduction of a machine for hand labor. The books of a farm of some 10 acres showed a harvest of grain insufficient for the wants of the farmer and his family; he was compelled to buy one-third of his yearly amount. These figures were submitted to Parliament by a practical farmer.—MANNHEIM, *January 25, 1888.*

J. C. MONAGHAN,
Consul.

SELF-REPRODUCING FOOD FOR YOUNG FISH.

Every person who has been interested in the artificial propagation of fish, particularly trout and the several other species belonging to the genus *salmonoid*, knows what care and labor are necessary to carry the young fry through the period immediately following the absorption of the umbilical sac, and to bring them to such a stage of maturity that they can be safely turned loose in open ponds or streams to shift for themselves. The mere hatching of the eggs involves no difficulty, and, under fair conditions, is ordinarily so successful as to make the propagation of fish in almost any quantity an apparently easy matter. But with the commencement of artificial nutrition the serious part of the task begins, and it is usually a small percentage of the swarms which are hatched that reach the maturity of yearlings, at which period the dangers of infancy are past. During the intervening months it has been customary to feed the young alewives on curdled milk, coagulated blood, finely hashed meat and liver, grated yolk of eggs, macerated brains of animals, etc., the preparation of which, and the frequent feeding of the dainty little creatures, involve constant and more or less costly labor. Moreover, none of these forms of nutriment have been found entirely satisfactory, for the reason that they are all distinctly artificial and different from the living, organic food which nature provides for those species of fish during their tender infantile period. This difficulty of providing proper nutriment results often in turning out the young fry into open water too

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early, when the temperature of the stream or pond is so much below that of the tanks in which they have been hatched that they perish by thousands from chill and inanition, without making an effort to find natural food in their new element. Accordingly, the problem has been to devise a natural, self-reproducing food, so easy and certain in preparation that it may be cheaply and abundantly provided, and thus facilitate the maintenance of the alewives during the first ten or twelve months of their existence, by the end of which time they should be so strong and active that a large majority may be relied upon to survive the struggle for life in larger waters.

This result seems to have been fully attained by a discovery made several years ago by Mr. F. Lugrin, of Geneva, and practiced since 1884 in the piscicultural establishment at Gremaz, in the department of Ain, in Eastern France. As this process has been examined and approved by eminent experts sent specially for the purpose by piscicultural societies of England and other countries, it is thought that some account of it may be of interest to the large and rapidly-growing class of fish culturists in the United States.

Mr. Lugrin was for many years a practical fisherman on the Lake of Geneva. He noted the steady diminution of the more important species of fish in the lake, and sought to ascertain the cause. He gradually reached the conclusion that the germ of the trouble lay in the growing scarcity of minute crustacea and the larvæ which are the natural food of the trout and other fish, especially during their first months of nutrition.

After elaborate experiments he hit upon a system by which *daphniæ*, *cyclops*, fresh water shrimps (*grammarus pulex*) etc., could be bred in countless myriads at a merely nominal cost. The hatching and rearing of a generation of these minute creatures is the work of from twelve to fifteen days, and as the process may be repeated—or rather repeats itself—again and again in the same water, the problem would seem to be solved.

Whoever has watched from a place of concealment the trout feeding in an American stream has admired the adroitness with which they work down stream, raising with their noses the up-stream edge of flat stones until the current, catching underneath, aids the clever little forager to turn over the stone and expose the minute larvæ and crustacea on which he so voraciously feeds. It is the purpose of the process now under consideration to raise by artificial means these same species of organisms, and in such quantities that the young fry may not only be abundantly fed in tanks or small enclosed ponds, but ample supplies provided for enriching larger streams and ponds where, for some reason, the natural supply may be insufficient.

The apparatus is simple, and visitors properly introduced have no difficulty in seeing the entire establishment at Gremaz, which occupies a gently-sloping piece of ground, about six acres in extent, and watered by three springs, which yield collectively about 500 gallons of water per minute. The tanks are square excavations, about 120 feet long by 12 in width, with a depth of five feet. The ground being of a gravelly character it was necessary to line the walls and bottom of some of the tanks with cement in order to retain the water, but in close, clayey earth this would be needless, and

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the natural dirt bottom, if not too muddy, would be preferable to cement. The tanks have the same general level, and are divided by sliding gates of wire gauze sufficiently fine to prevent the passage of the fry. Thus far all is simple and obvious. The process of Mr. Lugrin, which has been patented in several countries, consists in spreading upon the bottom of these tanks a material impregnated with the elements necessary to produce spontaneously a limitless number of *daphniæ*, *cyclops*, *limnoe*, as well as fresh water springs and the larvæ of various *ephemeræ* which form the natural aliment of trout and other salmonidæ at all stages of their growth. Once constructed and impregnated with this producing material — which is of trifling cost — these tanks go on with their work automatically and indefinitely. The water, from two to three feet in depth, being left undisturbed two or three weeks, is found peopled with swarming myriads of minute organisms of the species above named. Twenty thousand trout a year old, or three thousand two years old — which last should average nearly or quite a pound in weight — are considered a sizable flock for a pasture of that size, and the avidity with which they rush to occupy and ravage their new feeding ground is a delight to the pisciculturist. If the propagation has been ordinarily abundant these 20,000 young fry or 3,000 year-olds will subsist royally in a tank of the size indicated for an entire month. They will eat on an average 20 to 25 pounds of food per day, or 600 to 800 pounds per month. Careful experiment has demonstrated that each tank at Gremaz will produce 650 to 900 pounds of *crevettes* (fresh-water shrimps), to say nothing of the myriads of *daphniæ*, *cyclops* and other species produced in the same water during the same time. When, at the close of the month, the tank has become depleted, the gate is opened and the fish driven like a flock of sheep to a new and similar pasture. The first tank, being closed and left in quiet, immediately begins the process of reproduction, and at the end of two or three weeks is swarming again with the varied minute organic life which far surpasses in value as food for fish anything that has been yet devised by man. Thus the simple, inexpensive process goes on from year to year, the fish always healthy and vigorous and larger at two years old than those artificially fed are at the age of three years. Yearlings bred in this way are strong, and capable of making their way in any open stream or pond supplied with food and suitable for their existence. One thousand of such yearlings have been found more effective in stocking a depleted trout stream than fifty thousand young fry turned in, as has been so often done heretofore, in order to get rid of them at the tender age when artificial feeding first becomes not only necessary but difficult and troublesome. For these tender nurslings all open waters, particularly when inhabited by older trout or other voracious species, are beset with a thousand dangers which the vigorous yearling is able to escape.

It is evident from all this that the system practiced at Gremaz is equally applicable to the industrial raising of trout and other fish for market, and to the restocking of streams and ponds for purposes of sport. In the first case, it is only necessary to provide a series of tanks or small ponds from

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one to another of which the fish can be changed monthly, as hereinbefore described, until they reach a marketable size; and it is to be remarked that trout raised by this method have the natural firmness and flavor of wild fish, and not the flabby, degenerate character of those which have been fed on liver, offal, and other unnatural, degrading food. Once prepared, a tank or pond is permanently productive. However voracious the young fish may be, they leave the bottom of the water still peopled with myriads of parent organisms which reproduce so rapidly that, before the end of a month, the placid water becomes clouded with swarming millions of their progeny. The fecal matter dropped by the fish during their month of occupancy is sufficient to maintain the fertility of the bottom, and thus the system, once established, becomes automatic and self-sustaining.

A single attendant can have the care of a large establishment, his only duty being to drive the fish periodically from one feeding ground to another and close the gate behind them, as a farmer changes his flocks from one pasture to another.

It remains to be explained that while the *daphniæ*, *niais*, *cyclops*, and other extremely delicate species can be profusely grown only in still water, the fresh-water shrimp (*grammarus pulex*) grows abundantly in living streams. At Gremaz, rivulets are provided which flow from the springs into the tanks and carry away the overflow. These rivulets, the bottoms of which have been impregnated by the Lugrin system, are filled with cresses and other water plants and produce the minute shrimps in such abundance that they are gathered daily in pansful by a few sweeps of a gauze scoop-net and fed to the fish in the swarming tanks. This part of the process is easily applicable to natural streams where a sufficiency of food does not already exist.

As to the applicability of this system to American pisciculture, there is apparently no room for doubt or question. The same natural conditions which exist at Gremaz can be found in nearly if not quite every State in the Union. The same food which is produced there may be used in growing nearly every species of fish which is artificially reared in the United States. American brook trout, the rainbow trout and California salmon thrive admirably in the tanks at Gremaz.

To conclude with the verdict of Prof. Francis Day, who, in October last, came specially from England to investigate and report upon the system which has been so successfully established there:

When I remark that in fifteen days a tank, 35 meters long by 3 broad, and 40 centimeters deep, and capable of containing 20,000 young trout, can be fully stocked with food in fifteen days, so as to be able to sustain the residents for one month without any additional supply, I cannot help thinking that Mr. Lugrin has solved a difficult problem, and that his mode of cultivating the natural food of fishes will prove a great and lasting benefit to the fish culturist.—MARSEILLES, *February 25, 1888.*

FRANK H. MASON,
Consul.

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SAN DOMINGO CABLE SYSTEM.—Consul Astwood writes from San Domingo under date January 16, 1888:

I have to report the important information that this Republic is about to be placed in cable communication with the world. The cable ship has already arrived at this port with the material for laying the line between this city and the Island of Curaçoa. Operations have already begun for the fitting up of the offices, etc. It is stated that the cable will be laid within the next sixty days.

Another cable will be laid between the ports of Puerto Plata and Santiago de Cuba; the telegraph line overland, connecting Puerto Plata, Santiago and other inland towns with this city, will reach here in a few weeks.

These several enterprises will be very beneficial to the commercial prospects of this Republic.

GERMAN UNIVERSAL EXPOSITION FOR PREVENTION OF ACCIDENTS.

THE HON. THOMAS F. BAYARD,
Secretary of State, Washington, D. C.

SIR:

I have the honor to enclose herewith copy and translation of a letter, dated the 9th instant, from the President of the German Universal Exposition for Prevention of Accidents, begging me to make known in the United States, among those whom it may concern, the objects and aims of the Exposition. Accompanying the letter were three pamphlets (programmes), which I also enclose herewith.

GEO. H. PENDLETON.

[TRANSLATION.]

WILHELM STREET 55, BERLIN, *March 9, 1888.*

His Excellency the Envoy Extraordinary and Minister Plenipotentiary of the United States of America, The Honorable GEORGE H. PENDLETON.

The undersigned board of directors has the honor to give notice that a German Universal Exposition for Prevention of Accidents will be held in the months from April to July, 1889. The Exposition is to contain apparatus and appliances meant to protect workmen against the dangers which threaten them in the industrial occupations, from the knowledge and introduction of which a reduction in the number of industrial accidents may be expected.

The humanitarian views which prompt this Exposition have won the full sympathy and support, not only of the principal representatives of industry and agriculture in Germany, but also of the German Imperial and Royal Prussian state officials.

As may be seen in the three copies of the enclosed programme, the Exposition aims not only to promote a knowledge of the apparatus and appliances calculated to prevent accidents, but also to stimulate an interest in their further development and to furnish the inventors of similar protective contrivances an opportunity to demonstrate their practical utility. The Exposition will therefore have much of the character of an industrial exposition, differing only from the purely industrial expositions in that such articles only will be admitted whose whole aim or make has a demonstrable relation to the prevention of accidents. Such articles

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and appliances shall also be admitted which tend to the workmen's protection and general welfare, and are therefore adapted to lead directly or indirectly to a diminuation of industrial accidents.

As the workmen and handicraftsmen of all lands have an equal concern in the decrease of accidents in the industrial occupations, there can be no doubt that this Exposition will also be of interest for other countries, especially as, according to the "Conditions for Exhibitors" found in the programme, foreigners are allowed to enter their exhibits.

The undersigned board of directors therefore take the liberty to respectfully beg your Excellency to make this projected undertaking known, in the manner that may seem most fit to you, among those whom it may concern, but especially among the makers and inventors of safety apparatus in the States whose Government your Excellency represents.

The undersigned board of directors will be happy to give further information, and begs a gracious acceptance of the assurances of most profound esteem with which it signs,

Your Excellency's most humble Board of Directors of the German Universal Exposition for the Prevention of Accidents,

REIMANN ROESICKE,
Chairman.

COMMERCIAL TREATY BETWEEN ITALY AND SWITZERLAND.

A commercial treaty has just been signed between Italy and Switzerland which places the latter among "the most favored nations."

As all efforts to renew the commercial treaty between France and Italy have failed, it may be desirable to point out briefly the most important consequences of this failure. Among these are an increase of 50 per cent. in the duty on textiles imported from France into Italy, and a very large increase in the duty on minerals and manufactures of metals, and wines—including brandy. The result will probably be that Italy will import her textiles from England, and that a stimulus will be given to iron manufactures in Italy. Of much more importance to Italy is the large increase in the duties imposed by France upon wines, raw silk, and cattle imported into France from Italy. Hitherto Italy has supplied the Lyons silk mills with the greater part of their raw material, and it is believed that these mills will now be obliged partly to suspend their operations. Immense quantities of cheap Italian wines have hitherto been sent to France to be converted into "Bordeaux wine," and the importation of Italian cattle has been very large. Italy will now have to send her cattle to England, and will greatly extend her silk manufactures. The Italians have now the opportuity to improve their own wines instead of selling them as material to French winemakers, and should this be done Italy could, in the course of the next fifteen years, rival France as a producer of wines of all classes.

It remains to be seen to what extent the tariff war between France and Italy will extend the market for American cattle in France and for American textiles in Italy.—ROME, *March 2, 1888.*

W. L. ALDEN,
Consul General.

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RAILROAD FRANCHISE IN MEXICO.

Mention has already been made of a railroad concession having been granted on December 5, 1887, for a line to commence at the port of Mazatlan (Consular District of Mazatlan), State of Sinaloa, to extend to the northwest, nearly parallel with the coast line of the Gulf of California into Sonora, to connect with the Sonora railway at some convenient point north of Guaymas; this franchise or contract was not formally confirmed by the President of the Mexican Republic, until February 23d of this year, and is a modification of the franchise or contract of the Sinaloa and Durango line which was signed on July 5, 1886.

It is proposed that this line shall pass through Culiacan, the State capital of Sinaloa into Sonora, touching at Alamos, and, as before stated, connecting with the Sonora railway.

The contract also includes a road from Culiacan or Mazatlan to some point in State of Durango with right to continue the line through the State of Coahuila to the Rio Grande, and to construct branches from either side of the lines, each branch not to exceed 62.14 statute miles in length, the said branches to be designated to the executive within five years from date of signature of the franchise.

From the port of Altata to the city of Culiacan a railway 35 miles in length is in operation. This piece of road was constructed under a concession granted to the Government of the State of Sinaloa on 15th August, 1880. The time allowed for commencement and completion of the surveys and construction of the line is the same as that stipulated by the concession of July 5, 1886, but extended so as to count from February 23d of this year.

The concession confers right to construct and operate docks, wharfs, warehouses, telegraphs, etc., as is usual in such contracts.

The road to be standard gauge, the maximum of grades to be four per cent. and the minimum radius of curves to be 325 feet. The weight of rails to be 60 pounds to the yard.

The company formed to carry out this contract can issue bonds at not less than $15,000 nor more than $25,000 per kilometer, and can mortgage the line at a rate not to exceed $150,000 per kilometer. The subsidy given by Government to be $8,000 per kilometer (equal to $12,874 a statute mile) in bonds denominated "railway subsidy bonds," bearing 6 per cent. interest payable by the Treasury every six months.

At the end of 99 years the road and all its equipments to become the property of the Government.

Referring to a franchise granted by the Mexican Government in November of last year, mentioned in my general report of that year, for the construction of a line of railroad from Guaymas to Alamos 240 miles distant, a reconnaissance of the route has been made but no work of construction has yet been commenced nor has any material arrived.—GUAYMAS, MEXICO, *March* 19, 1888.

A. WILLARD,
Consul.

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THE RAILROADS OF TRINIDAD.

There are 54¼ miles of railway on this island, all belonging to the Government. The dates when the various lines were opened for use were from 1876 to 1886. The line from Port of Spain to "Armia" extends about 16 miles in an easterly direction; that from Port of Spain to "San Fernando" reaches about 31 miles in a southerly direction, and the one from San Fernando to Princestown has 7 miles in an easterly direction.

These railways extend through fertile plains, and along the sugar and cocoa plantations. The crown claims the right of way, but pays a compensation to private property of about £20 per acre, on the average. The materials for constructing these railways were mostly brought from England. Telegraph and telephone communications are established along the lines. Farms and villages are appearing, and the population — principally negroes and coolies — is rapidly increasing. Manufactures are in demand, and are imported from England.—TRINIDAD, B. W. I., *February 29, 1888.*

MOSES H. SAWYER,
Consul.

MEXICAN AND CALIFORNIA STEAMSHIPS.

Referring to my dispatch dated September 7th of last year,* respecting the inaugural voyage of the first steamship of the Mexican International, Pacific, and Gulf of California Steamship Company, in compliance with a contract made with the Mexican Government by Luis Huller & Co., in 1886, which called for monthly steamers from San Diego (U. S.) to San José de Guatamala, to touch at all intermediate ports on the Pacific coast of Mexico, including Guaymas, I beg leave to add that only three irregular voyages have been made by the steamships of this company, and it is now reported that the company will not, for the present, continue to despatch steamers on the route on account of the insufficiency of remunerative traffic.

The steamers of the California and Mexican Steamship Company, making voyages from San Francisco (U. S.) to Guaymas and intermediate Mexican ports, "laid off" their steamers since the first of the year, owing to the supposed permanency of the voyages of the Mexican International, Pacific, and Gulf of California Steamship Company's steamers, before mentioned.

This month a steamer of the California and Mexican Steamship Company will commence making regular voyages to Guaymas, touching at the intermediate Mexican ports of Ensenada de Todos Santos, Magdelena Bay, Cape St. Lucas, Mazatlan, and La Paz, as formerly. — GUAYMAS, *March 20, 1888.*

A. WILLARD,
Consul.

* Printed in CONSULAR REPORTS, No. 88, January, 1888, p. 164.

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MEXICAN TRADE WITH EUROPE.*

Our daily contemporary, *La Patria*, greatly fears that the people of this country will become "the commercial subjects of the United States" for the reason that, while trade with the Northern Republic is daily increasing, commercial dealings with Europe are decreasing in the same proportion. The completion of the central railway, our contemporary reasons, dealt a powerful blow at European commerce with this country, and when the second trunk line connecting us with the United States shall be completed next autumn, the *Patria* considers that the absorption of the commerce of the country by the Americans will be completed. It is not the American people of the United States against which our contemporary inveighs, but against a commercial monopoly which it believes will bring political and industrial disaster upon this Republic. Our contemporary asks at the conclusion of its article: "But how could this American commercial invasion be stopped?" And its reply to its own query is: "By favoring European trade in every way possible, since our principal products find their market in Europe." *En bassant* we may remark that the market of the principal products of this country is shown by Government statistics not to be Europe but the United States. While we desire to see trade with Europe increase, believing it for the interests of the country to have as many markets as possible open to it, the fact remains that neither France nor Italy, Spain nor Germany, Belgium nor Austria, show any desire to trade extensively with this country. The efforts of the *Patria* to extend the trade of Mexico to Europe must be supplemented by some practical attempt of Europeans to buy the characteristic products of Mexico. The truth is that the nations of the continent of Europe give this country the cold shoulder; they do not build the railways that are opening up formerly inaccessible but rich sections of the Republic; they do not invest in mines, or lands, but content themselves with selling as much as possible here and buying as little as possible of our national products. The proof of this is to be found in the yearly reports of the Treasury Department.

England and the United States, the great Anglo-Saxon nations, have placed in this country enormous sums of money, have built railways, operated mines and bought vast tracts of lands, conducting all their enterprises subject to the laws of the country. In the *creation* of wealth on Mexican sod the English and the Americans have expended a vast amount of capital and energy. It cannot truthfully be said that other nationalities have done the same. By encouraging the building of railways, connecting with the system of transportation in the Northern Republic, Mexico has identified her commercial interests with those of the United States and the Dominion of Canada, both her natural and most easily accessible markets, and in spite of all efforts to the contrary it will be found that economic no more than political revolutions go backward.—MATAMOROS, MEXICO, *February* 14, 1888.

* The brief article on "Trade with Europe" is taken from the Mexican Financier of January 14, 1888. It is of interest as showing how American commercial interests, aided by the new railways, are steadily gaining the trade of Mexico.—[Consul General Sutton.]

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COPYRIGHT REGULATIONS OF JAPAN.

[TRANSMITTED BY MINISTER HUBBARD.]

We hereby give our sanction to the present ordinance relating to the copyright regulations, and order it to be promulgated. [His Imperial Majesty's Sign-Manual, Privy Seal.] Dated the 28th day of the 12th month of the 20th year of Meiji. Countersigned—Count Ito Hirobumi, Minister President of State; Count Yamagata Aritomo, Minister of State for Home Affairs; Count Yamada Akiyoshi, Minister of State for Justice.

IMPERIAL ORDINANCE NO. 77—COPYRIGHT REGULATIONS.

ARTICLE I. The term "copyright" shall mean the right by virtue of which an author shall be able to have the exclusive enjoyments of benefits arising out of the publication of a literary work or of a picture or drawing of whatever sort. The term "counterfeit" shall mean a literary work or a picture that has been published without the consent of the holder of the copyright.

ART. II. Any person who shall publish a literary work or a picture or drawing of whatever sort, in accordance with the Publication Regulations, shall be entitled to receive protection for his copyright according to the present Regulations.

ART. III. Those who desire to receive protection for their copyright must, previous to publication, apply to the Department of State for Home Affairs for the registration of their copyright, at the same time transmitting to the said Department of State, a sum of money corresponding to the money value of six finished copies of the work in question.

ART. IV. When a Government office intends to publish a literary work or a picture or drawing of any sort, and desires to obtain registration of copyright for the same, the fact shall be communicated to the Department of State of Home Affairs.

ART. V. During the period of protection, the words "copyright secured" (*kanken shoyû*), shall be inscribed upon the literary work of the picture or drawing, for which the registration of copyright has been obtained. In case the aforesaid words are not so inscribed, the registration shall lose its effect.

ART. VI. In the Department of State for Home Affairs, there shall be kept a copyright registration book, in which entries shall be made whenever application shall be made for registration; and a certificate of registration shall be issued to applicants for the same.

Notices of literary works and of pictures or drawings for which registration has been obtained, shall be published upon every occurrence thereof in the *Official Gazette* by the Department of State for Home Affairs.

ART. VII. The copyright shall belong to the author, and after the author's death, to his heir.

The copyright of reports of lectures and of speeches collected in a book form shall belong to the lecturer himself or to the speaker; but when the reporter thereof has published them with the consent of the lecturer or speaker, the copyright shall belong to the reporter, and after his death, to his heir.

The copyright for translation shall belong to the translator, and after his death, to his heir.

The copyright of literary works and of pictures or drawings published under the authorship of a Government office, of a school, company, association, or of the like, shall belong to the Government office, school, company, or association whatever, under whose authorship the same may be published.

The copyright of literary works or of pictures or drawings that have been compiled from the works, lectures, or speeches of more than one person, shall belong to the compiler, and after his death, to the heir. But the relation between the compiler and the original author, lecturer, or speaker, or their heirs shall be arranged by mutual agreement.

ART. VIII. A copyright may be sold or transferred with or without conditions.

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ART. IX. When the certificate of the registration of a copyright has been injured or lost, application may be made to the Department of State for Home Affairs for its duplication by stating the circumstances attending the injury or loss. The applicant shall, however, pay a fee of 50 *sen* for the same.

ART. X. The period of the protection of copyright shall be for the life of the author and for five years more. When, by calculating the number of years from the month in which the copyright has been registered to the month in which the author has died and adding five years to the result, it is found that the whole number of years falls short of thirty-five years, the period for which the copyright shall hold good shall be fixed at thirty-five years from the month in which the copyright was registered.

In the case of a joint authorship, the period during which the copyright shall run shall be computed with regard to the author who shall die last.

In the case of literary works and of pictures or drawings published under the authorship of a Government office, school, company, association, or the like, or in case of literary works and of pictures or drawings published after the death of the author of the same, the period during which a copyright shall run, shall be thirty-five years from the month in which the registration thereof was made.

ART. XI. In the case of literary works and of pictures or drawings issued in a series of succeeding numbers, the period of copyright shall be computed for each number from the month of its publication. But on each occasion the process mentioned in Article III shall be gone through. In the case of magazines, the process mentioned in Article III may be omitted with the permission of the Minister of State for Home Affairs.

ART. XII. The protection of copyright shall not be affected by any change, addition, or abridgement made in any literary work or picture or drawing; nor by the addition of notes, of an appendix, of drawings, etc.; nor by a change in the style of binding; nor by the increase or decrease of the number of volumes composing it.

ART. XIII. In the case of literary works or of pictures or drawings that are of special benefit to society, but that have not repaid, during the validity of the copyright, the labor and expenses of the author, the Minister of State for Home Affairs may, on the application of the copyright-holder, extend the period of copyright for 10 years longer.

ART. XIV. When a copyright-holder has died during the period of efficacy of his copyright, and when any one, believing there is no successor to the copyright-holder, desires to publish the literary work or picture or drawing copyrighted, he shall advertise the fact for more than seven days in the *Official Gazette* in more than four leading newspapers in Tôkyô, and in a newspaper at the place where the original holder of the copyright has resided. When no successor is found to the copyright within six months from the last day of advertisement, the advertiser may publish the literary work or picture or drawing and succeed to the possession of the copyright with the permission of the Minister of State for Home Affairs.

In the case of any unpublished work, the author of which cannot be ascertained nor yet can his heir be, the said work may be published and protection for the copyright may be obtained by the process mentioned in the foregoing clause.

ART. XV. Essays or other articles, or novels, which have been completed in two or in more than two numbers of the same newspaper or magazine, cannot be compiled into a book form and published within two years from the month in which the said essay, article, or novel was completed, unless the consent of the author of the essay, article, or novel in question has been first obtained.

Even if two years shall have elapsed, such essays, articles, or novels, as have already been published in a book form and for which copyright registration has been obtained, cannot be compiled for publication a second time.

ART. XVI. Any person who shall have counterfeited a literary work or a picture or drawing, for which a copyright has been obtained, shall be liable to a claim for damages that may be brought against him by the copyright holder. The violation of copyright by sale of manuscript copies, shall be visited by the same penalty as in the above case.

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ART. XVII. Upon the institution of a case of counterfeit, the judge may, if the institutor of the case so requests it, temporarily stop the sale and distribution of the work in question. But when after trial it is decided that such work is not a counterfeit, the institutor of the case shall be obliged to pay the damages caused by the stoppage of the sale and distribution of the said work.

ART. XVIII. The obligation to pay damages in relation to a counterfeit shall extend to the heir of the counterfeiter.

ART. XIX. Any person who shall make a translation of a copyrighted literary work or picture, or drawing, shall make additions thereto, or abridgements therefrom, shall add notes, an appendix, drawings, etc., thereto, or shall complete the unfinished portion thereof and shall publish the same without the consent of the copyright holder; and any person who shall have violated Article XV. of the present Regulations, shall be dealt with as a counterfeiter.

Any person who shall have published the reports of lectures or speeches without the consent thereto of the lecturer or speaker, shall be liable to the same penalty as in the cases of the proceding clause.

ART. XX. The copyright of a translation shall belong to the translator, but no case of counterfeit can be brought against a person who has made an independent translation from the original. But it will be different with a translation which is proved to have been made by pilfering from another translation already published.

ART. XXI. Any person who injures the copyright of another, by intentionally making use of, or by imitating the title of, a copyrighted literary work or by combining a similar name, a similar name of a company, or a similar name of a firm, etc., shall be dealt with as a counterfeiter.

ART. XXII. Any person who, without the consent of the author or his heir, publishes a literary work or a picture or drawing, which has not yet been published, or any person who publishes a literary work or a picture or drawing not intended for sale by the author, shall be treated as a counterfeiter.

ART. XXIII. When photographs of a literary work or of a picture or drawing are taken, to [for?] the infringement of a copyright of the same, the punishment for the offence shall be the same as in the case of a counterfeit.

ART. XXIV. Any person who shall import and sell foreign counterfeits of a literary work or of a picture or drawing which has been copyrighted in this country, shall be treated as a counterfeiter.

ART. XXV. When in a case of counterfeit it is difficult to decide whether the literary work or picture or drawing in question is counterfeited or not, the court in which the case is tried may appoint at least three assessors and order them to ascertain the truth.

ART. XXVI. The term of prescription for the obligation to pay an indemnity for damages in connection with a counterfeit, shall be three years after the expiration of the period of the copyright of the original work.

ART. XXVII. Counterfeiters and such printers and book-sellers as may know the truth as to the counterfeit of the work in hand, shall be liable to a major imprisonment of not less than one month and not more than one year, or to a fine of not less than 20 *yen* and not more than 300 *yen*. But the penalty shall be meted out upon the institution of a suit by the injured party. The plates and impressions of a counterfeit shall be confiscated in whatsoever hands they may be found. As to the copies already sold, the proceeds of the sale thereof shall be confiscated and shall be given to the injured party, together with the aforesaid plates and impressions.

ART. XXVIII. Even in the case of literary works and of pictures or drawings which have not been copyrighted, it is prohibited to pervert the meaning of the author by mutilating the work, to change the title, to conceal the name of the author, or to publish the work under the false authorship of another person. Infraction of any of these prohibitions shall be punishable by a fine of not less than 2 *yen* and of not more than 100 *yen*. The penalty shall, however, be meted out upon suit by the injured party.

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ART. XXIX. Any person who publishes a literary work or a picture or drawing bearing the words "copyright secured" (*hanken shoyû*) without having gone through the process mentioned in Article III., shall be liable to a fine of not less than 10 *yen* and not more than 100 *yen*.

ART. XXX. The provisions mentioned in the Criminal Code for the mitigation of penalties on account of voluntary confession, for the aggravation of penalties on account of repetition, and for the concurrence of several infractions committed by the same person, shall not be applied in the case of the violation of any of the provisions of the present Regulations.

ART. XXXI. The term of prescription for the institution of public prosecution in connection with the present Regulations, shall be two years, and shall be computed from the time when the literary work or picture or drawing in question was sold and distributed for the last time. In case the literary work or picture or drawing in question has not been sold and distributed, the term of prescription shall be computed from the time of the last printing thereof.

ART. XXXII. The period of copyright obtained under the existing Publication Regulations shall be computed according to the existing Publication Regulations.

DRAMATIC COPYRIGHT.—IMPERIAL ORDINANCE NO. 78.—REGULATIONS FOR PLAYS AND MUSICAL COMPOSITIONS.

ARTICLE I. Plays and musical compositions may be published, and copyrights may be obtained for the same, in conformity with the Publication Regulations and the Copyright Regulations.

ART. II. Any person who has published a play or a musical publication and holds the copyright for the same, may, during the period of copyright, also possess the right of performance thereof (*i. e.* of the performance of them before the public for the sake of profit). But when the right of performance is reserved, the words "right of performance is reserved" (*kôgyôken shoyû*) shall be inscribed upon the play or musical composition published.

ART. III. The right of performance of a play or musical composition may be sold or transferred, with or without conditions.

ART. IV. Any person who violates the right of performance of a play or of a musical composition shall be compelled to pay an indemnity for damages to the holder of the right of performance thereof. Any person who produces in public an unpublished play or musical composition, without the consent of the author thereof or his heir, shall be liable to the same penalty as is provided for in the above case.

ART. V. The term of prescription for the obligation to pay an indemnity for damages in connection with the performance of a play or of a musical composition, shall be one year from the last month in which the right of performance was violated.

SHIPBUILDING IN GREAT BRITAIN.*

The tonnage of the vessels launched in this country during the year 1886 was 473,000, the lowest output for many years. The tonnage built during 1887 was 578,000, showing an increase of 105,000. It is a noticeable fact that much of the building during 1887 was of craft for special trades.

There is also little doubt that the cheapness of the cost of construction helped to increase the demand for vessels. It is also worthy of remark that the class of vessels built during the past year has been of a better type; built of a material believed to be more enduring, and with engines capable of working more economically, with a lessened use of fuel.

*The tables transmitted by Consul Smith were substantially those that were printed in CONSULAR REPORT No. 89, p. 276.

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At the present time most of the shipyards in this district are fairly well employed, and that the prospects of the trade for this year are more cheerful than they were twelve months ago is admitted on all hands.

Most of the vessels now on the stocks are of large carrying capacity. An important fact affecting the prospects of shipbuilding is that the number of vessels lying idle, especially steamships, is very small. Between thirty and forty vessels are now in course of construction on the Tyne, the completion of which is being energetically pushed forward. A fact which favors shipbuilding is that for some time past the tonnage of the United Kingdom and its colonies has been diminishing. The returns of the registrar general show that there were removed from the registries by loss and sale during the year 1887 497,000 tons, and that there were added to the same 403,000, showing a decrease of 94,000 tons. This decrease is said to be mostly in sailing vessels. It is also stated that the increase of tonnage shows a large proportion of tugs, yachts and other river craft and fishing vessels.

Of steamships there is an increased proportion of large-sized vessels for the great lines — passenger rather than cargo-carrying vessels.—NEWCASTLE-UPON-TYNE, *February 3, 1888.*

JOSEPH SMITH,
Consul.

[NEWSPAPER EXTRACT.]

We have given, in successive issues, returns of shipbuilding at English, Scotch and Irish yards, and also those of a few representative foreign yards; and it is now evident that in 1887 there was some recovery from the depression which had been deepening on the industry yearly since 1885. There are ports, such as Barrow, which have done less this year than in its predecessor, but this is an exceptional case, and more generally the tonnage is increased. It may be well to give and extend a diagram which has previously been given in the *Daily Chronicle*, and which shows roughly at a glance the position of shipbuilding at the chief British ports since 1879. It is as follows:

TONS.	1879	1880	1881	1882	1883	1884	1885	1886	1887
420,000					C				
380,000				C					
440,000			C						
300,000						C			
260,000									
220,000		C		W	T				
200,000				T	W		C		
180,000									C
160,000	C		T					C	
140,000		T	W		H				
120,000	T			H		T			
100,000		W	H			W	T		T
90,000									H
80,000	W	H						T	W
70,000							H		
60,000	H					H	W		
50,000								W	
36,000								H	

C—Clyde; T—Tyne; W—Wear; H—Tees and West Hartlepool.

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It is evident that in all these centers the year 1887 has surpassed its predecessors in extent of tonnage. In 1886 the decrease of tonnage brought, roughly speaking, the position of the ports down to what they had started from in 1879; and the increase this year is not as great as that of 1880.

The ports we have named build by far the largest part of the tonnage of the nation. The Clyde has launched in 1887 a splendid fleet of 324 vessels, 184,963 tons; from the stately liner down to the small yacht. Our own Tyne has built 74 vessels, 104,296 tons—an increase of 21,536 tons on its predecessor. The Wear takes, as on previous occasions, the third place, enlarging its total of the previous year; and fourth on the list comes West Hartlepool, which has more than trebled its production of last year. Our local ports have, in nearly every instance, increased their tonnage, and the net result may be indicated in the fact that the shipbuilding yards from Blyth to Whitby have turned out 41 more vessels in 1887 than in the preceding year, whilst the tonnage was increased by the large quantity of 107,500 tons. There is another notable comparison, which may be thus given:

	Tons.
Average production of northeast yards	7,600
Average production of Clyde yards	4,400

And whilst it took 324 vessels to form 184,000 tons on the Clyde, at our local ports 171 vessels were 284,833 tons. Alike, then, in the aggregate tonnage, in the yield of the yards on the average, and in average size of the vessels, this coast takes a much prouder position than the famous Clyde.

A few words as to the material. Our returns show that there were nearly a score of ships built of wood, in addition to boats, so that the "wooden walls" of England linger still; iron is used at some ports largely—the Wear constructing nearly a third of its number of vessels of iron, but generally that form of metal is dwindling and steel is taking its place. West Hartlepool built all its vessels, save one, of the latter material; and on the Clyde more than half in number, and considerably more than half in tonnage, were steel, whilst the Tyne built about five-sixths of its vessels in 1887 of steel also.

It is interesting to notice that the "blue riband" of the trade passes to Ireland, Messrs. Harland & Wolf, of Belfast, having constructed vessels of 31,445 tons, whilst Messrs. W. Gray & Co., of West Hartlepool, take the second place with 30,243 tons, and Messrs. Russell & Co., of Greenock, follow with 27,035 tons. From this the builders' tonnage falls until we reach the return of one firm building a vessel of 12 tons.

Another feature which should be named is the increasing use of triple expansion engines. Many of the returns show that all the steamers built by the builders concerned have had the newer form of engines, and "compound" engines are like iron—giving place to what is believed to be a more economical form. "Quadruple expansion" engines also make their appearance in the return, but rarely as yet. The tendency, however, in marine engineering is unmistakable.—*Newcastle Chronicle.*

ADULTERATED SPANISH WINES.

I enclose a translation of a circular from the Spanish Minister of the Interior to the civil governors of the provinces throughout the Kingdom, embodying a Royal Decree of January 30th last, directing prosecutions to be made against the manufacturers and venders of adulterated wines.—CADIZ, *February 3, 1888.* DARIUS H. INGRAHAM, *Consul.*

[TRANSLATION.—CIRCULAR.]

The Council of the Association of Agriculturists of Spain, the League of Contributions of Sanlucar, the Association Viticulture and Enological and Provincial Council of Agriculture, Industry and Commerce of Valladolid and other various and special corporations have presented

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petitions to this Ministry asking for measures to prevent the adulteration of wines and the manufacture of artificial substances which are injurious to public health.

The Minister of State gives information that wines coming from Spain have been landed at Bordeaux colored with extracts of the *hulla pit oral*, whose consumption is prohibited in France.

In Hernani, was closed by order of the Government a manufactory of artificial wines, carried on by a French subject, for violating these laws, and in Vendsell, more than 20,000 liters of wine belonging to a manufacturer of the same nationality were destroyed on account of having contained noxious substances.

These facts have appealed powerfully to the attention of the Government, because they present dangers threatening to the public health, and demand relief from one of the causes that alcoholism produces so terrible in its consequences to the individual and society. And although the evils may not as yet have reached excessive proportions, the fear that they may is sufficient for the Government to act, employing whatever means the laws provide, with the firm purpose of not yielding until a result altogether satisfactory has been obtained.

Besides these considerations there are others involving the good name of Spanish industry and commerce, which, above all, it is the duty of the Government to watch, preventing greed and bad faith from losing the market of our wines, so much sought for until now for their excellent qualities, lest they disappear under the manipulations of speculators for whom the shortest means is fear of vigorous punishment, the only way of guarding the public health, and of placing the grape and wine industries, so important to Spain, under protection from fraud and falsification.

[ROYAL ORDER.]

First. The governors of the provinces shall prosecute the sale of natural and artificial wines, aguardientes and beverages which contain noxious matters, being careful to guard from consumption those that are found in this condition, punishing the first offence by fine, and delivering over those repeating the offence, to the ordinary tribunals.

The following, in accordance with the report of the Royal Academy of Medicine and the Royal Council of Health, will be considered adulterated: 1. Natural wines which contain impure industrial alcohol and alcohol from the husks, (cascara) if they are not rectified and purified. 2. Salicylic acid and other antiseptic substances. 3. Foreign colored substances, those derived from the products of *pit coal* (*productos de la hulla*), as well as from vegetable or whatever other origin. 4. Artificial glucose, (azucar de fécula), sugar from flour or new wine. 5. Glycerine.

Second. Your Excellency will order the mayors in compliance with the preceding, to employ all means that the laws provide to have the wines analyzed, particularly those made in special establishments and those intended for exportation, and especially those sold in wine shops. The analyses shall be made in the municipal laboratories, where there are any, or in those of the institutes, taking advantage of any other whatever of the State or of the province. In towns not having these, the analyses shall be made by the sub-delegates of medicine and pharmacy and if there is none, by the town directors and the town chemist. If any sub-delegate refuses to perform this service, he shall at once lose his office.

Third. In the visits that your Excellency considers it convenient to make personally or by means of a special delegate as well as whenever the mayors believe it convenient, there shall be sealed three bottles of the wines to be analyzed; one to be kept by yourself and the second by the owner of the establishment. The third shall be sent to the laboratory for analyses, while the other shall be sent for verification in case of objection being made. The result of all the analyses shall be published in the Official Bulletin.

Fourth. The first day of each month the mayors shall render to your Excellency an account of the analyses made the month preceding. Those who neglect shall be punished by your Excellency, who on the fifteenth day of each month will send a resumé to this Ministry of the reports which have been remitted to you by the mayors, and of the punishments you have imposed on those who have failed to do so.

Fifth. Your Excellency will insert this circular in the Official Bulletin, having regard above all to the mediums which will give it the greatest publicity. — MADRID, *January 30th, 1888.*

ALBAREDA.

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IMPROVED STOCK IN THE ARGENTINE REPUBLIC.

In closing a report on the cattle industry of the Argentine Republic, of the date of November 24, 1883, I stated that in my opinion, if it was not in its infancy, it was still in its undeveloped state, and that it would hereafter assume far greater proportions and be prosecuted with far better results; that while in the past horned cattle were only raised for their hides, and in the present only for their hides and the product of their carcasses, the time was coming when, with the influx of intelligent labor from Europe, to these would be added also the products of the dairy, but that to this end an improved breed would have to take the place of the present native animals. In other reports I have had occasion to refer to the increased interest, by means of fairs and stock exhibitions, which was manifesting itself in the improvement of the breed of horses and sheep, though in reference to the latter the business of growing fine-wooled sheep had been prosecuted for many years.

INCREASED DEMAND FOR FINE BREEDS.

A change for the better in all these branches of stock industry has been going on almost imperceptibly for several years, but recently there has been a very marked development of a taste for fine stock among those who are engaged in this department of industry. It is difficult now to visit any part of the vast plains of the Argentine Republic without noting the wonderful improvement which is now to be seen in the quality of the sheep. Probably no part of the world can exhibit to-day so many magnificent flocks of prize-wooled sheep as the Province of Buenos Ayres. In horses also, especially in the neighborhood of the cities and large centers of population, an improvement in the breed is becoming very preceptible. The small "creolle," or native horse, with its ungainly appearance, but wonderful powers of endurance, is gradually making room for a cross which, while it retains the good qualities of the native breed, is greatly superior in size and style. There has seemed to be less interest manifested in horned cattle, but now very fine crosses of the Durham and Hereford are taking the place of the gaunt and long-horned native stock.

A CHANCE FOR THE UNITED STATES.

As the United States have become noted for the wonderful results which have been produced there in the improvement of the breeds of sheep, horses, and horned cattle—some of our stock farms now not merely rivalling but surpassing the very best of Europe—it has seemed appropriate that I should officially call the attention of our stock breeders to the market which the Argentine Republic is now offering for the best grades of animals. For a while the growing demand for blood stock was in great part filled by special orders sent to England and the Continent, but more recently owners of fine animals abroad have been undertaking the importation on their own account. And now the auction marts of this city are constantly the recipients of no inconsiderable numbers of the very best classes of horses, sheep, and horned

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cattle that are produced abroad, the prices which they fetch being generally satisfactory and in some cases quite extravagant.

OFFICIAL FIGURES OF IMPORTATIONS.

The following figures, which I have compiled from official sources, will show the importations of breeding animals for the last four years:

Live stock.	1884.		1885.		1886.		9 months of 1887.	
	No.	Official value.	No.	Official value.	No.	Official value.	No.	Official value.
Asses	28	$3,656	15	$440	5	$640	19	$550
Hogs	10	485	3	200	33	1,699	307	2,270
Horses	79	62,582	87	17,335	85	16,170	120	22,000
Sheep	1,489	132,253	1,048	50,846	1,071	46,810	1,524	42,442
Cattle	783	135,539	185	32,525	254	58,890	506	92,763
Total		334,515		101,346		124,209		160,025

An analysis of the statistics shows that for the year 1884 the asses were from Spain and the hogs from Great Britain; of the horses, 46 were from Great Britain and 22 from France, the rest coming from Germany and Belgium; of the sheep, 1,114 were from Great Britain, 281 from Germany, and 87 from France, the rest coming from Spain, Belgium, etc.; of the horned cattle, 740 were from Great Britain, the rest coming from France and Belgium.

For the year 1885, the asses were from Spain and the hogs from Great Britain; of the horses, 41 were from France and 38 from Great Britain, the rest coming from Belgium and Germany; of the sheep, 573 were from Great Britain, 326 from Germany, 117 from France, 26 from Belgium, and 6 from Spain; of the horned cattle, 137 were from Great Britain, 29 from France, and 19 from Belgium.

For the year 1886, 2 of the asses were from Spain and 3 from France; of the hogs, 31 were from Great Britain and 2 from the United States; of the horses, 44 were from Great Britain, 40 from France, and 1 from Belgium; of the sheep, 659 were from Great Britain, 234 from Germany, 94 from France, 84 from the United States; of the cattle, 229 were from Great Britain, 7 from France, 6 from Italy, 3 from Belgium, and 1 from Germany.

For the year 1887 I am not able to state from what countries the imported cattle were received, though no inconsiderable number of sheep were from the United States, as were also some of the horses and cattle.

In the above table I have given the official or custom-house valuations, but I do not understand how they are reached. As all importations of blood stock for breeding purposes are free, I imagine that the column of "official values" is for the most part either fictitious or assumed for statistical purposes. Otherwise it is difficult to explain why there should be such a difference in the valuations for different years, unless each importer has been allowed to put his own value on his animals.

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THE AMERICAN PIONEERS IN THE BUSINESS.

The interest, which is beginning to be manifested here for improved breeds, has in a small way stimulated some of the breeders in the United States to seek a market in Buenos Ayres for their stock. One of the pioneers in this business is Mr. E. C. Eels, of Vermont,* who has now made three ventures down here, first with Vermont merino bucks, and afterwards with both sheep and horses. During the present year several other parties from the United States have appeared in the field, bringing merino sheep and horses of the Vermont stock. And only a few weeks ago a herd of magnificent Hereford cattle, consisting of 9 bulls and 16 cows from the old established Stockfields breeding farm, at Pontiac, Mich., arrived here to find a market under the auspices Mr. E. A. Sumner.†

SALES OF AMERICAN SHEEP.

The sales of imported breeding sheep from the United States have thus far produced very satisfactory results. There is no doubt that in length and compactness of fleece, as well as in fineness and excellence of fiber, they compare most favorably with, if they have not surpassed, the very best which have come out from England or France, where the refining process is so scientifically studied. In body they may not be quite so large as the Rambouiet, but they much exceed them in weight of fleece; and thus far I am sure that all who have bought, even at very round figures, are fully satisfied with the result of their purchases.

VENTURES WITH AMERICAN HORSES.

The first ventures with American horses here found a very ready market. Heretofore the reports of the turf of Buenos Ayres have consisted exclusively of running races, and some fine specimens of English racers have been imported. There is, however, a growing taste here for fast trotters, the drives to and through Palermo Park affording sporting gentlemen fine opportunities for testing the going qualities of their horses. Horse fanciers, knowing the wonderful trotting stock which the United States have developed, were gratified at the opportunities offered for securing specimens of the breed, and were ready to pay even fabulous prices for trotters which could do their mile inside of "2.30." In most cases the purchasers obtained what they bargained for, the performances of the horses being very satisfactory; but in quite a number of instances, if one may judge by the complaints which have been made to this consulate, the credulous purchasers, trusting to the good faith of the sellers, have been rather shabbily treated in having horses foisted upon them with false pedigrees, or which did not correspond in age to their certified pedigrees, or to the entries in the "stud book;" and when they were brought down to their work were found to be ordinary roadsters. In several trotting races lately, some American blooded importations, which

*Mr. Eels informs me that he was induced to bring his Vermont breeding sheep to this maket by first seeing my report on the "Sheep Industry of the Argentine Republic," of the date of September 30, 1879.

†Mr. Sumner says that his attention was first called to the Argentine Republic as a market for breeding cattle by seeing my report on the "Cattle Industry of the Argentine Republic," published in "Part II of Consular Reports, Cattle and Dairy Farming, 1887."

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were guaranteed to do most wonderful work, were quite left out in the cold by half-breeds raised here in the country. The result has been disastrous to the further sale of such other American horses as have since been seeking a market here, the fair and conscientious importers suffering for the sins of those who think that "everything is fair in a horse trade." The Argentines are very confiding; but where they have been "humbugged" once they become decidedly sensitive, and in the future they may be less disposed to buy, without something more than the mere assurances of the seller as to the qualities, age, or possible achievements of a horse, lest they be "stuck" with the refuse of the New York auction marts. All this is unfortunate for those Americans who have in good faith been seeking to open and continue a strong and permanent market here for our fine trotting stock. As it is well known that we have the fastest trotting stock in the world, it is to be hoped that American enterprise may yet have an opportunity of sending or bringing down here such horses as have a bona fide turf register, and whose pedigrees are beyond suspicion. If the horse is all right the price of the animal is of no consideration here. Most of the sales thus far have run from five to ten thousand dollars per horse.

HORNED CATTLE—HEREFORDS AND DURHAMS.

In regard to horned cattle, the only venture that has yet been attempted here is the herd of Herefords which I have already referred to. They were offered for sale at auction, but several circumstances conspired against the sale in that way, and they were subsequently sold in a lump at private sale, and at very fair prices considering that they came at the wrong season of the year for proper competition. Indeed, so well satisfied were the parties that I understand they propose at once to make further shipments of the same class of cattle. I think that Durhams, if of good pedigree, would also do well. Nearly all the horned cattle thus far imported from England have been of the Durham breed; though there is a growing tendency towards a preference for Herefords, for the reason that they and their crosses are thought to be able to "rough it" better during the winter months, and because their hides are considered superior.

KIND OF STOCK TO SHIP.

I may state in conclusion that all shipments of sheep, horses, or cattle from the United States for sale here should be of prime quality and have a place in authorized books of pedigrees. It would not be a safe venture to undertake to dispose of any other animals than such as have an undoubted record. For such I think there is now room and a good opening, and will be for some time to come, in the Argentine Republic. The sales at the public marts of this city last year of imported breeding stock, I am informed, reached to over $600,000; and they will probably go beyond that figure during the present year.—BUENOS AYRES, *February 6, 1888.*

E. L. BAKER,
Consul.

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GERMAN COLONIES IN ASIA MINOR.—Consul H. M. Jewett writes from Sivas, under date December 21, 1887:

During the past year there has been put into operation a movement for the immigration to Asia Minor of colonists from Germany. There are now some hundred German families at Amasia, a city on the river Iris, one hundred miles northwest of Sivas. This is due principally to the efforts of Herr Krug, the German Consul there, who has interested himself largely in the new immigration movement.

Most of the colonists are mechanics and men of moderate means. They have engaged in milling, wagon-making, farming and other industries. Several flouring mills with improved European machinery have been erected, and this branch of business for which Amasia is well adapted, owing to its fine water power and being the center of an extensive grain district, will be largely extended the coming season. It is expected that next year will see a large addition to the colony and that several other colonies will be located in other parts of Anatolia.

While this immigration is as yet but small, it is of importance as indicating the commencement of a movement which will undoubtedly turn a part of the stream of German emigration in a new direction and it can not but be of great advantage to this country in developing resources which are now, owing to the character of the population, wholly unused.

*RUSSIAN PETROLEUM INDUSTRY FROM 1883 TO 1886.**

In continuation of my former report upon this subject—No. 92 February 25, 1887—and in view of the growing importance of the Russian petroleum industry and the gradual encroachment of Russian naphtha upon markets heretofore exclusively controlled by its great American competitor, the following statistical review and observations covering the years 1883 to 1886 both inclusive, collected and compiled by a most competent authority and kindly placed at my disposal, may not prove devoid of interest or value to those of our citizens engaged in this vast industry in the United States.

At the opening of the Transcausian Railway in 1883 great hopes were entertained for the more rapid development of the Russian naphtha industry, for by this means it was conceived to be possible to enter into competition with its powerful American rival in the European and Indian markets; and, indeed, a new life seemed to animate Baku, for the facilities for extracting the raw naphtha were multiplied, while numerous new factories for its refinement were established, and the production showed a steady increase from that period.

As compared with the year 1883, 1886 shows an increased production of over 250 per cent. Not taking into account the local consumption, the export in the former year amounted to less than 30,000,000 pud—150,000,000 gallons—(at 5 gallons per pud equal to 36.113 United States pounds); in 1884 it rose to 261,216,710 gallons; in 1885 to 300,149,775 gallons, while in 1886 it reached the total of 377,006,120 gallons.

Notwithstanding these results the expectations anticipated from the opening of a railway were not fully realized, owing partly to the difficulty experienced in crossing the Suram pass, and other unforeseen obstacles that temporarily interrupted the traffic of the Transcaucasian Railway, and perhaps also

*See the report of Consular Agent Chambers on p. 4 of this number.

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because of the continued insufficiency of tank cars, so that a large part of the increased yield of the past four years was again forced back into the home markets by the old route via the river Volga.

The proportion of the exports to home consumption during the four years under review might be stated as follows:

	1883.	1884.	1885.	1886.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Export via rail and the Baltic	7	4	6	5
Export via Black and Caspian Seas	5	7½	11	15
Total exports	12	11½	17	20
Home consumption	88	88½	83	80

By far the greatest portion of all the Russian petroleum has always been shipped from Baku via the river Volga, for its transportation more than 30 tank steamers besides many other vessels are plying the waters of the Caspian Sea.

In the year 1883, 131,595,605 gallons or about 90 per cent. of the total yield of the Russian oil wells were sent by way of Astrachan; in 1884, 242,700,915 gallons or about 92 per cent; in 1885, 271,165,995 gallons or about 90 per cent; and, finally, in 1886, 270,845,010 gallons or about 72 per cent., from which figures it is obvious that it was not until the year 1886 that the Transcaucsian Railway succeeded in securing an appreciably greater share of the total transportation of Baku naphtha; but it is reasonable to predict that in the future this share will not only be fully maintained, but vastly augmented for the presence of ice interrupts the traffic during about four months of the year, and the bar at the mouth of the Volga prevents the entry of the steamers plying on the Caspian Sea, and necessitates transshipment to smaller craft.

It has already been shown how the Russian home market was glutted with petroleum, due partly to the many new refineries that were called into existence in Baku after the completion and opening of the Transcaucasian Railway, which eagerly bought up and prepared for the market the extraordinarily cheap raw naphtha, but also because of the want of sufficient means of transportation, so that in the beginning of 1886 the accumulation of oil in the Russian Empire is said to have amounted to 40,000,000 gallons, half of this was stored in Zarizyn, the other half in Domnino, (the principal depot of the refineries of Nobel Brothers near Orel,) in Moscow, in St. Petersburg, in Warsaw, etc., mostly in tanks.

In the year 1886, 115,000,000 gallons more were added to this supply, so that the stock for the market amounted to no less than 155,000,000 gallons, only 80,000,000 of this enormous quantity are said to have been disposed of during the year, so that there was carried over into 1887 a stock of 75,000,000 gallons, distributed as follows: In Zarizyn, 25,000,000 gallons; in Domnino, 20,000,000 gallons, and the remaining 30,000,000 gallons in various points in the Russian Empire.

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A St. Petersburg newspaper in April of last year stated that the association known under the firm of Nobel Brothers, the largest refiners of raw naphtha in Russia, at the moment of the reopening of the water, had 16,500,000 gallons of their own raw naphtha on hand, and that in their reservoir at Baku there was a stock of not less than 6,000,000 gallons of petroleum; 1,675,000 gallons of lubricating oils and residue, and 1,500,000 gallons already loaded and ready for transportation awaited a market.

It is not very difficult to realize that under such conditions the price of raw naphtha has been very much depressed; it fluctuated between 1¼ and 1½ copecks (a copeck is 7.77 cents) per pud of 5 gallons at the wells; the cost of transporting it to the refineries by rail is 1½ to 2 copecks (11.3 to 15.5 cents) per pud, or ½ to ¾ copecks (.38 to .59) by pipe line, making its net cost at the refinery 1¾ to 3½ copecks (1.3 to 2.6 cents) per pud.

As 3½ gallons of raw naphtha yield 1 gallon of refined petroleum, and as the employment of the residue, besides affording the requisite heating material, produces also lubricating oil, etc., in sufficient quantity and value to about cover the expenses of refining, it follows that the net cost of a pud of Russian petroleum in Baku is about from 6¼ to 12¼ copecks (5 to 9.7 cents.)

The market price of prime quality refined petroleum in Baku shipped to Russia via Astrachan was 12 to 15 copecks (9.3 to 11.6 cents) in the latter part of 1886, while in former years it ranged between 22 to 27 copecks (17 to 20.9 cents) then gradually fell to 20 to 24 copecks (15 to 18.6 cents,) and in the beginning of 1886 declined to 14 to 16 copecks per pud (10.8 to 12.5 cents.) Second quality petroleum in the latter part of 1886 sold at 8 to 12 copecks (6 to 9.3 cents,) while in the winter of 1885–86 it still commanded 12 to 13 copecks (9.3 to 10 cents,) and during the period of navigation in 1885 readily sold for 18 to 21 copecks (14 to 16 cents.) It will be observed from the foregoing that under the most favorable conditions, the margin on refined Russian petroleum is merely nominal.

Lubricating oils of prime quality sold at from 70 to 130 copecks (53 to $1.01) the pud at the end of 1886, while in former years 130 to 150 copecks ($1.01 to $1.16) were realized. Second quality has fallen from 70 to 100 (50 to 77 cents) to 50 to 90 (38 to 70 cents) copecks. Naphtha residue cost in 1886, during the season of navigation, 4 to 6 copecks (3 to 4.6) per pud, while during the winter months it was sold for from 1½ to 3 copecks (1.1 to 2.2 cents.)

Owing to the immense stocks on hand in the interior of Russia, as has already appeared, the price of refined petroleum in Zarizyn is even lower than in Baku; the freight between these two points is 15 copecks (11 cents) per pud; but notwithstanding this oil at Zarizyn is offered at 25 copecks (19.4 cents) the pud with no takers, this may also account for the fact that in 1886, 5,000,000 gallons less petroleum were shipped via Astrachan than in the preceding year.

As a result of the spare use made of the water routes within European Russia and the high railway tariff, the quantity of petroleum brought into

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Russia via Astrachan, that was subsequently exported to foreign markets, was comparatively limited; it is calculated that in volume it amounted to 9,138,175 gallons in 1883; 8,466,825 in 1884, and 12,950,000 in 1885, and for 1886 the exact figures are not yet at hand; the destination of these exports in 1883 and 1884 was principally Germany, and since 1885 also Great Britain.

It would appear that owing to the withdrawal from traffic of the tank steamers of the Batoum-Odessa line, the Russian naphtha products have recently been shipped in tank cars via the Prussian frontiers and the Baltic seaports, at a considerable saving in freights it is said.

According to custom house exhibits, the average prices per pud of petroleum in the St. Petersburg market in December 1885 and 1886 were as follows:

	1885		1886	
	Copecks.	Cents.	Copecks.	Cents.
Russian petroleum	110 to 120	85.5 to 93.2	110 to 112	85.5 to 87.5
In tanks	90	70	80 to 82	61. to 61.2
American	240	$1.86.6	240	$1.86.6

From these figures it will be observed that Russian naphtha costs but about one-half of American refined petroleum in the St. Petersburg markets.

The following table shows the transportation of Russian naphtha via the Transcaucasian Railway:

	1883.	1884.	1885.	1886.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*
Petroleum	13,585,100	19,414,870	36,761,240	69,661,495
Lubricating oil	500,000	2,660,000	425,000	5,101,620
Residue	.....	5,250,000	5,095,000	7,862,170
Raw naphtha	725,000	205,000	2,520,530	13,417,685
Total	14,810,100	27,529,870	44,801,770	96,042,970

While this exhibit looks favorable enough so far as the increase in the traffic of the Transcaucasian Railway is concerned, the water route via the Black Sea is not yet fully assured, owing to the lack of means of transportation, which is equally true of the Transcaucasian railway.

As a result of the latter, contracts made by refining companies to deliver their manufactured naphtha products at the Black Sea ports at certain fixed periods becomes therefor almost next to impossible, notwithstanding a mixed commission has been charged with the pro rata distribution of the tank cars of the Transcaucasian Railway among the different refining firms. It not infrequently happens that houses having contracts to fulfil and being in want of more tank cars than their pro rata shares are obliged to lease them from their neighbors and competitors, paying therefor a premium of from 10 to 15 copecks (7 to 10 cents) per pud.

That by this uncertainty in the delivery of petroleum at the Black Sea ports the commerce is greatly injured is obvious, and it is of no rare occurrence that foreign markets are very often overstocked with Russian naphtha, while at other times there may be an actual scarcity. In addition to this

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freight rates of the Transcaucasian Railway are very high. One pud of naphtha product by tank car from Baku to Batoum costs 16½ copecks (12.8 cents); the distance is but 839 versts, or 556 miles. The Russian Government, it is understood, has recently taken this matter in hand with a view to remedying the existing defects, and, it is said, proposes to substitute a tunnel for the steep grade of one to twenty of the road over the Suram Pass, while pending its construction and completion work on one or more pipe lines is to be immediately commenced.

Another formidable project is to connect the Caspian with the Black Sea by a pipe line, with vast refineries to be established at Batoum; while yet another proposition is to lay the line to Poti instead.

Of the naphtha products carried by the railway by far the greatest part is exported, notably via Batoum. The increase in this traffic has been a most decided one, and no pains or expense are being spared to find new markets outside of Russia.

In 1883 the total exports via Batoum to a few countries was 6,241,070 gallons; in 1884 it had already reached 18,273,525; in 1885, 31,943,890, while in 1886 it had grown to 54,216,455 gallons, an increase of over 750 per cent., distributed among the following countries:

	Petroleum.	Lubricating oil.	Residue.	Raw naphtha.	Total.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
In the month of January	6,469,065	1,096,950	.....	.....	.....
The balance of the year:					
Egypt	765,000	.....	.....	.....	.....
Algeria	259,000	.....	.....	.....	.....
Belgium	2,337,650	1,004,650	1,758,365	.....	.....
Bulgaria	75,000	.....	.....	.....	.....
Denmark	335,750	.....	.....	.....	.....
Germany	1,165,000	850,000	127,700	.....	.....
France	1,708,400	1,264,335	971,490	.....	.....
Greece	641,790	1,795	.....	.....	.....
Great Britain	1,087,500	1,919,115	245,000	.....	.....
Italy	2,286,480	293,400	785,500	.....	.....
Holland	.....	120,000	.....	.....	.....
Austria-Hungary	5,810,880	141,750	3,803,170	.....	.....
East India	2,181,100	.....	.....	.....	.....
Roumania	4,472,460	58,650	22,800	.....	.....
Spain	308,000	.....	.....	.....	.....
Turkey	11,310,470	9,055	4,410	.....	.....
Tunis	6,930	.....	.....	.....	.....
Total via Batoum	38,167,525	6,760,500	7,718,435	1,560,000	54,216,460

Among the new markets into which Russian petroleum has recently made its entry may be mentioned Syria, Egypt, Algeria, Belgium, Denmark, and East India.

The number of steamers carrying the naphtha products from Batoum has lately been greatly increased. Freights by tank steamers from Batoum to Trieste is 10 copecks (7.7 cents) per pud, and to Hamburg, 15 copecks.

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The following table shows the exports via the Russo-Austrian and Russo-Roumanian frontiers, and by sea via Odessa:

Year.	Petroleum.	Lubricating oil.	Residue.	Raw naphtha.	Total.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
1883	470,050	139,660	5,575	697,675	1,312,960
1884	1,038,615	144,120	85	2,382,315	3,565,335
1885	815,280	292,600	.....	4,432,620	5,540,500

In the year 1886 the traffic via Odessa was greatly augmented.

Freight from Batoum to Odessa is 8 to 9 copecks (6 to 7 cents) per pud, which is considered a high rate for such a short distance.

It may be well to mention that it has been maintained—with what degree of veracity I cannot state—that the repeated pumping of petroleum from reservoirs into tank steamers and tank cars, and *vice versa*, does not only not occasion any material loss, but, on the contrary, by reason of the introduction of air, is said to improve the oil. It would seem necessary to make such statements the subject of a special and thorough study and investigation before it can be positively determined in how far compressed air will have an influence on its illuminating power.

The extension of the Transcaspian Railway and the consequent opening up of new markets has developed a considerable increase in the consumption of petroleum in the region traversed by the railway, and a still greater demand for Russian naphtha is therefore expected, all the more so as it is proposed to complete the construction of the road. The figures for the years preceding 1886 are not at hand, but in that year the total transactions in the Transcaspian region amounted to 6,917,045 gallons.

The exports to Persia are continually assuming larger proportions.

The following tables have been published:

Year.	Petroleum.	Solar oil.	Residue.	Raw naphtha.	Total.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
1883	476,655	.....	283,045	443,670	1,203,370
1884	691,935	.....	78,000	529,565	1,269,500
1885	810,770	.....	168,645	665,115	1,644,530
1886	1,474,225	185	334,720	806,900	2,616,630

The naphtha deposits in the Kuban region yield on an average yearly about 2,500,000 gallons. Half of this is sent overland to northern Caucasia, while the rest is exported by sea from Novoorossysk.

In 1885 the following quantities were transported coastwise:

	Gallons.
Petroleum	47,500
Residue	1,218,000
Raw naphtha	90,000
Total	1,355,500

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For the first six months of 1885 the exportation was only—

	Gallons.
Petroleum	180,000
Residue	70,000
Raw naphtha	55,000
Total	305,000

In the second half of the year the exportation amounted to 805,000 gallons, bringing the total of 1886 up to 1,110,000 gallons, or a decrease of 245,500 gallons.

Between the proprietors of the larger refining establishments and their smaller competitors there appears to exist considerable rivalry, and the former often accuse the latter of disposing of their naphtha products at prices that are prejudicial to the general markets; on the other hand, the smaller refiners retort by asserting that their more fortunate competitors are flooding the markets with such immense quantities of oil that they can only hope to secure a footing by offering inducements in the way of prices.

A movement has lately been inaugurated by which it is expected and hoped to concentrate the sale of the raw naphtha to a few firms, or entrust it to brokers, by which method it is hoped the demand and supply, as well as prices, may be harmonized and regulated.—BEIRUT, *February 8, 1888.*

ERHARD BISSINGER,
Consul.

THE RUSSIAN PETROLEUM EXHIBITION.

[CORRESPONDENCE OF THE GLASGOW HERALD.]

If ten years ago anyone had ventured to predict that in the present year Russia would be holding a Petroleum Exhibition, and that the oil industry would be well established and have a world-wide reputation, he would have been laughed to scorn, not simply by incredulous Americans, but also by the Government and press of this country. Yet, in the interval, the petroleum trade of Russia has expanded so rapidly, and has startled so often the public by its marvels, that it is already regarded as commonplace, and excites but little interest except in commercial and official circles. For years the Government took no notice of it whatever. The industry enjoyed absolute free trade, and from the moment the oil-borer paid the Government stamps on the lease of the land he hired from the Baku proprietors to the time he fixed the receipt stamp on the invoice of the refined oil sold to the customer at Astrakhan, Moscow, and St. Petersburg he paid no dues or taxes, and was wholly free from official supervision. Until 1887 the petroleum industry enjoyed quite a unique condition of freedom among Russian industries. Things have now begun to change. The Government has suddenly commenced to display an affectionate interest in its career, and the petroleum industry is becoming the sport of commissions, committees, and *Tchinovniks* of every kind. The industry has been placed under the special protection of the Ministry of Crown Domains, and the Minister, Senator Ostrovsky, has been twice to Baku. The Governor-General of the Caucasus has also been to see the oil wells, and the Minister of Railways as well as the Minister of Finance; while, since the Petroleum Exhibition was opened, most of the Grand Dukes have visited the display, the Committee of Ministers have had the entire exhibition a whole night to themselves the heir-apparent has paid a visit with a gorgeous suite of generals and senators, and the Czar himself has expressed his intention of following his son's example before the end of the month.

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Petroleum, for the moment, is quite a fashionable topic in select court circles. Those officials and officers who years ago had grants of oil lands given them by the late Emperor, and have not sold or mortgaged them, are regarded with universal envy. Every functionary who has happened to pass through Baku in the course of his career is treated as an authority on oil, and has to submit to a cross-examination in regard to crude, kerosene, pipe lines, tank steamers, liquid fuel, etc., which would tax the knowledge of the cleverest writer on petroleum. So far so good. The interest in Government circles excited by the exhibition is bound to benefit Baku, but at the same time there is a drawback to the affection displayed by the Government for an industry neglected so long. Already a body of inspectors have been appointed to supervise the industry, to support whom the refiners have to pay a slight tax; while an impost has just been established on the refined article, which is a bad augury for the future. True, excise duty is refunded if the article be exported, but all the same it affects foreign trade. Under the most favorable circumstances kerosene invariably suffers from leakage in transit, particularly in barrels. The duty has to be paid before the oil quits Baku, at the rate of one copeck a pood (nearly a farthing per 4½ gallons,) and no allowance is made at Batoum or any other outport for leakage. Hence, if 100 copecks be paid on 100 poods at Baku, and in transit 20 poods happen to leak, the officials refund money only on 80 gallons, and the exporter loses 20 copecks by the transaction. On this account the new impost, although intended not to interfere with foreign trade, really does affect it, and the Minister of Finance refuses to remedy the defect. Up to now he is reported to have netted three million roubles, or a quarter of a million sterling, on the kerosene tax that came into force the beginning of the present year.

The Petroleum Exhibition was intended to have been of an international character, but it cannot be said to merit the designation. America is not represented at all, nor yet Burmah, Galicia, Roumania, or any other oil-producing country. Scotland sends nothing whatever, not even an oil pipe, notwithstanding that the Glasgow firm of A. & J. Stewart has in its time despatched more miles of oil piping to Russia than any other foreign firm. The jealousy of rival countries at the development of the Russian industry, which is injurious to their own, is probably at the bottom of the refusal to send samples of oil and oil products; while as prizes were only offered for lamps, manufacturers of pipes, tank steamers, and oil machinery had no great inducement to send models. Yet even of the 200 or 300 lamp-manufacturing firms of England and Scotland only four have sent a display of lamps; and Continental firms have not been a whit more enterprising. On this account the exhibition is really more a national than an international one, and owes its interest not to any comparative display of the progress of the world's oil industry, but to the light it throws upon the development of that of Russia. If longer time had been given, and the exhibition had been better advertised abroad, the result might have been different, although in any case St. Petersburg lies too much out of the chosen highways of the world to attract many visitors, above all in winter, when, however pleasant the Russian capital may be, traveling to and from it is not at all agreeable. On this occasion the winter is the severest ever recorded at St. Petersburg since Peter the Great founded it in the early part of last century, and has kept many would-be visitors away.

Not that the exhibition is not warm enough. The display is held in the building constructed for the International Exhibition of 1870, and in the gas and lamp section a nightly temperature is maintained of from 100 to 120 degrees Fahrenheit. To pass from this equatorial temperature into the Arctic climate outside, where the record has been night after night for two and a half months from zero Fahrenheit to 32 degrees below zero, is a transition which only a Russian can enjoy. It is true that everybody sheds his pelisse and overshoes on entering the place, and that a good buffet lies between the Equator and the North Pole, thereby enabling one to do quarantine between the two temperatures. Still, the sensation on getting into the cold is very curious, reminding one of a hot flat-iron being gently drawn over the face and a pair of hot curling-tongs inserted into the nostrils. In the exhibition itself the greatest inequality of temperature also prevails. The display is divided into three sections—the lamp and gas section, to which is attached the department devoted to petroleum engines and models of lighthouses; the scientific section, containing a display of photometers, electrical

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apparatus; and finally the section devoted to electric lighting. The first is oppressively hot, the second disagreeably chilly, while to reach the third one has to pass underground through the damp model of a coal mine, attaining afterwards the cold, violet glare of the electric light, which is not at all inviting. The exhibition, besides containing petroleum, illustrates also every kind of light. It might have been better in some respects if the Imperial Technical Society had stuck to petroleum only, and worked that thoroughly; but the presence side by side of oil, gas, and the electric enables one to effect a useful comparison between the rival methods of lighting and note the progress made in recent years of each.

The keen competition between the three which prevails in England is reflected also at the exhibition. Among Russian experts who are not fanatically attached to any one system of lighting the opinion is dominant that a useful future exists for all three. None the less, although, speaking generally, more money has been spent on special displays of electricity and gas than has been the case with oil (several Russian petroleum firms have imitated foreign houses, and not exhibited at all,) it is impossible for any unprejudiced person to go through the exhibition without arriving at the conclusion that if the exhibition really does represent the actual state of things in Russia, gas and oil maintain an ascendency in progress over electricity, and that oil is a most formidable competitor of gas. And that the exhibition does represent what prevails in Russia in regard to lighting no one acquainted with the relative progress of oil, gas, and electricity of late years in Russia can doubt. I shall have some official statistics to give on this score later on. Meanwhile, suffice it to mention that notwithstanding Jablochkoff was a Russian, and that the Government and the municipal councils of Russia have given a warmer support to the various methods of electric lighting than any administration abroad, only a few streets and buildings here and at Moscow are lit with the electric light, while quite recently, after weeks of discussion as to the rival merits of electricity, gas, and kerosene, the Municipal Council of St. Petersburg decided against the former two in regard to lighting certain portions of the city, and ordered instead the installation of 8,000 kerosene lamps. I am quite aware that the electric light display at the exhibition is not a complete one, but this is a defect it possesses in common with the display of gas and oil. Speaking impartially, it is quite as representative of the actual state of things in Russia as the other two, whatever may be its imperfections from the international standpoint. One has only to go along the Nevsky, the Bolshoi Mor Skoi, and one or two other main thoroughfares to realize that although they are illuminated—and illuminated very well—with the electric light as an experiment, the chief enemy of gas is oil; this, too, in spite of coal gas being almost as cheap at St. Petersburg as in London. It is true that many shops are brilliantly lit with the Siemen's regenerative gas lamp, and that the Wenham and Albo carbon lights are in vogue, but to one shop that has abandoned the ordinary gas jet for those novelties quite half a dozen have abandoned gas altogether for oil; and yet the annual consumption of gas shows little sign of diminution. The tendency prevails here that has been remarked at home—that as light becomes cheaper people use more of it. Moreover, it is becoming the fashion to illuminate shops and houses more brilliantly every year. A shop on the Nevsky using a Siemen's regenerative gas lamp, or two or three 80 candle-power kerosene lamps of German manufacture, compels its neighbors, by the relative gloom it occasions in their windows, to either follow its example or else increase the number of gas jets or ordinary kerosene lamps. As one who has repeatedly visited St. Petersburg during the last 15 years, I must confess to have never observed such progress in lighting as during the last three years, particularly in regard to oil. In the ordinary thoroughfares of the capital, as well as in the leading streets, shops are lit with lamps of a size and intensity that would astonish shopkeepers at home. It would do those good who are downcast about the future of paraffin oil to pay a visit to St. Petersburg and see how oil can be rendered a favorite method of lighting, and an increasingly popular one by means of good lamps. This is a lesson to be learnt at any time in St. Petersburg, but at the exhibition it is forced upon one by the way the lamp exhibits hold their own against the latest novelties in gas. Without thinking of the heat they would occasion the committee placed the gas and oil exhibits in one hall. This mistake, however, has the advantage of

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enabling one to institute a comparison between Siemen's regenerative gas lamps, Wenham and Albo carbon lights, Sugg burners, and Welsbach incandescent lights blazing brilliantly on one side of the hall and mineral oil lamps of the Defries, Kumberg, Schnoor, and other firms blazing with equal brilliancy on the other. On a long table at the end of the gas exhibits are displayed alight nearly 100 lamps competing for the prizes for safety and brilliancy of light. The cheapening of oil the last few years has caused a perfect revolution in the trade. It is not simply that a score or more of lamps have been invented, but an infinite variety of chimnies and globes have come into existence, representing inventions for rendering them more durable, for enlarging the flame, and for giving beauty to the light; while there are all manner of patents in the shape of flame spreaders, extinguishers, and safety appliances of various kinds. Improvements made by glass and metal manufacturers march side by side with the advances in the burner itself; and that the co-operation of both is absolutely essential for the success of a lamp is demonstrated at the exhibition, where certain German lamps with burners of considerable candle-power are hardly looked at because no taste is displayed in their manufacture; while, on the other hand, Russians turn up their nose at the duplex lamp, in spite of the beauty of many of the lamps displayed, because the burners do not give light enough. This is an important lesson to be learnt at the exhibition, and should be borne in mind by lamp manufacturers in England. More than one Continental firm has established a good business in Russia by keeping this in view, and the brilliancy and beauty of their lamps have had much to do with the remarkable development in the demand for oil that has taken place here the last two years, and which has reacted beneficially upon the industry at Baku.—ST. PETERSBURG, *March 8, 1888.*

One of the first things that strikes a foreign visitor on entering the Petroleum Exhibition is the display of photographs on the walls, accompanied by maps of the petroleum districts of Russia and tabular statements of the progress of the industry from the time Baku was seized from the Persians in the early part of the present century. The photographs are not many, nor are they particularly good, but they serve a useful purpose in illustrating the growth of oil depots in the principal Russian towns, and can not but convince the most sceptical critic of the wonderful copiousness of the petroleum wells of Baku. During the last five years the European public has heard from time to time of the bursting forth of a new fountain of oil on the Apsheron peninsula. Many of the photographs show these fountains in course of eruption, and a wonderful sight they are, spouting 200 or 300 feet high, forming huge shoals of sand round about the orifice of the tube, and dropping oil and sand for hundreds of yards away. Here can be seen huge lakes of oil round about the fountains, large enough for boats to run a race in, while a fountain on fire—one of the incidents of last year—has the aspect of Vesuvius in a state of eruption. Other photographs show the rows of reservoirs, holding already nearly 20,000,000 gallons of kerosene, that have sprung up like mushrooms at Batoum the last two years. A whole series illustrate the actual condition of the town of Baku, displaying long lines of handsome streets solidly built on a site that ten years ago consisted only of desert sand and camel-thorn. The Nobel firm shows a picture of a little town they have created at Domino, near Orel, where they have established their central oil depot for European Russia. On one side of the extensive station built by them are 8 groups of tanks, 4 in a group, or 32 altogether, holding collectively over 20,000,000 gallons of oil. On the other side are the numerous houses built for the employés. The maps are equally striking. A new one of Baku shows a whole fringe of piers jutting out into the bay from the refineries, and allowing over a hundred steamers to take in cargoes at the same time. Most of these piers are connected also with the railway that runs away west to Batoum. Sprinkled among the refineries are such small trifles as a reservoir containing 6,000,000 gallons of *astatki*, or oil refuse, belonging to the Shibaeff firm; another of the same capacity, the property of the Caspian Company; while Nobel Brothers are shown to have a couple, each holding 8,000,000 gallons of liquid fuel. The map further shows the rapid growth of the new refinery town at Baku—Bieli Gorod, or White Town, lying northeast of the older refinery town known as Tchorni Gorod, or Black

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Town. It is in this new White Town that the huge refinery of the Rothchilds is situated, side by side with the colossal establishment of Shibaeff & Co.—a firm only now becoming known in Europe, but which has for years turned out 6,000,000 gallons of oil per annum, including lubricating oil unrivalled in Russia. Another map, sent by the authorities of Batoum, shows many a petroleum pier stretching into the harbor which the late Earl of Beaconsfield was declaring ten years ago could only hold seven men-of-war, while a red streak indicates the new fort Russia is constructing there at a cost of £300,000; and which is to be protected by a turret. It is interesting to note that on this official map the Turkish forts, which were to have been rased, are shown to be intact.

Looking at these maps and photographs, so full of instruction as to the wonderful growth of the Russian oil industry during the last decade, the visitor who has not followed closely the growth of the trade, and kept himself clear of conflicting controversies, can not understand the pessimist wail that from time to time has proceeded from Baku and encouraged the hope that the Russian bladder might burst and leave free the oil industries of Scotland and America from the depressing effects of severe competition. The most careless and superficial stroller in the exhibition can not but be convinced that there has been an extraordinary rapid growth of the trade, and that the growth is still continuing. Yet if he mixes with the petroleum experts and the representatives of the petroleum firms who visit the exhibition almost every evening, and find the buffet the most congenial place, he will constantly hear melancholy opinions expressed that would appear more fitting in the mouths of the hard-pressed oil refiners of Scotland and America. This anomaly, however, is susceptible of easy explanation. The present tendency at Baku is for great firms to crush out and supercede small ones, and the expiring groans of the latter make themselves heard all over Russia. Then most of the larger firms, in their eagerness to push the trade, work up to the utmost limits of their capital, and occasionally get hard pressed. Finally, it is utterly impossible to persuade the Transcaucasian and other railway companies to increase the transport facilities, or induce the Minister of Railways to force them to do so, whether they like it or not, without representing the Baku industry in the blackest colors as being on the verge of ruin. Moreover, there has been raging for two years a war between the rival firms and capitalists interested in the kerosene pipe line over the Suram Pass and those whose money is staked on the crude pipe line from Baku to the Black Sea; and, in order that each might win, all manner of distracting statements have been purposely circulated, which only those behind the scenes can clarify and appreciate at their proper value. Many of these controversies have been echoed, and many false statements copied innocently in the European press, arousing expectations of an ability on the part of America and Scotland to cope with the competition of Russia, and by combined action overcome it. To deal with them in detail would be to fill columns with matter of very little interest to the general reader, and I shall not, therefore, attempt to do so. Far better to describe how the industry actually stands, what the aims of its leaders are, and what further developments of the industry may be expected in the immediate future. I shall do my very utmost to be impartial in the matter, and perhaps may be able to drop a suggestion here and there which may enable Scotch oil refiners, if not to repel Russia's competition, at least to manage to rub along in spite of it.

The first point to determine is the question of the copiousness of the present supply, and how long it is likely to last. In the exhibition are displayed samples of oil and ozokerit from Ferghana, Transcaspia, the Island of Tchelekon, in the Caspian Sea, the government of Tiflis, the Kuban promontory of Cis-Caucasia, and the Crimea, as well as from Baku; but although these are all very interesting, and attract much attention, it is quite immaterial to deal with them if it can be proved that the Baku supply will maintain for years its present copiousness. This is not a very difficult matter. The supply, in the first place, is several thousand years old, and the earliest references in history to the Zoroastrian worship of fire in Old Persia connect Baku with the adoration of the blazing petroleum gas, issuing from the rocky ground of the Apsheron peninsula, which earned the place the well-known title of the "Region of the Eternal Fire." Almost every traveller for ages past whose peregrinations have led him to

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Baku speaks of the amazing copiousness of the oil flowing from the ground, and even so far back as the time of Marco Polo the Persians used to work the springs and export oil from the spot. Since boring on a large scale was introduced ten years ago the quantity of oil yielded by the wells has been prodigious. The records of some of them beat the most famous "gushers" known in the United States. Repeatedly a single well has spouted for weeks more oil than was being produced by all the 25,000 wells of the United States put together. The circumstances of most of the petroleum on such occasions being wasted has led to a clamor being raised that the Baku oil producers were recklessly draining the Apsheron peninsula dry. But although the cry is a very useful one, in so far as it is gradually leading to restrictive measures against an infamous waste of one of Russia's most lucrative resources; yet, as a matter of fact, the outpour of oil is exercising but little appreciable effect on the supply, and even if increased, is not likely to do so for generations to come. This is proved clearly enough by the fact that both last year and the year before, in spite of the preceding clamor, the fountains were even more numerous and powerful than before, while there was not only no very serious effort required to produce the oil—the spouting wells being very little deeper than previous ones, and in some cases not so deep; but some of the fountains broke forth in quite a new district where a copious supply had not been expected, and experts had even declared no large "spouters" could occur at all. If it be borne in mind that the area of oil-saturated country of the Apsheron Peninsula is 1,600 square miles, and that only five or six miles have yet been pricked for oil, it is really only prejudiced or ill-informed persons who can imagine the Baku supply likely to give in before the next century. Accuracy, as Sir Jas. Paget has been recently pointing out, is a quality as valuable in commerce as in science. It may suit Transatlantic capitalists interested in the American oil fields to seek to discredit the Baku petroleum supply by circulating stories of an impending impoverishment; but the Scottish oil trade, let alone the American, can not be revived by these means, and it is far better, therefore, to accurately define the worst, and ascertain whether the Russian competition can be met or not, than persist in dwelling in a fool's paradise. Against the three cardinal facts—that the supply has been naturally a copious one for countless ages, that only 5 out of 1,600 miles of oil country have been yet worked, and that the fountains last year were even more remarkable than the previous ones, can only be set the single counterpoise that the wells have to be pushed a trifle deeper every year. This, however, is capable of an explanation that deprives it of all significance. Nearly all oil wells in every part of the world have to be deepened time after time as the supply slackens. The exceptional cases of a well yielding oil year after year from the original depth are very rare, and there are not parallels to the career of the celebrated Kormilitza, or "Wet Nurse," well at Baku, which for twelve years gave every day a supply of 32,000 gallons of oil, or Mirzoeff's No. 5, which has given 40,000 gallons of oil every day for six. As a rule, after a while the supply slackens, and the owner pushes the bore deeper till he gets a fresh yield of a copious character, the process going on until the American oil producer sometimes penetrates nearly 3,000 feet. The Russians, however, are a long way off that. At Baku a well of 800 feet is considered a very deep one, and the average is still under 500 feet. It will be quite time to talk of Baku drying up when the present wells reach the American depth of 2,000 or 3,000 feet. In the meanwhile there is nothing out of the common in the wells being sunk deeper—the rate is very slow—because it is obviously cheaper for a man who has a tube 800 feet down to push his bore 20 or 30 feet deeper for fresh oil than to abandon the well and start a new one alongside, even though he may feel certain of getting oil at 400 or 500 feet. Hence the circumstances of there being now wells 800 feet deep where a few years ago there were only wells 700 feet deep does not in the least prove that the general supply is becoming scarce, although more than once persons ignorant of all the facts of the case and having but a limited knowledge of the practice of well-sinking in all parts of the world have put forth this erroneous assumption. It follows, therefore, that no sound expectations can be entertained of the prodigious copiousness of Baku abating for many, many years to come. If Professor Mendelaeff's delightful theory of the origin of petroleum be correct one can hardly expect it at all. It is a great misfortune that, owing to a

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misunderstanding between the professor and the committee, this eminent savant has held aloof from the exhibition and refused to have anything to do with it. This is a pity, for the Professor is one of the greatest, if not the greatest, living authority on petroleum, and his absence from the exhibition is a serious drawback. Years ago, at the instance of the Russian Government, he made an exhaustive study of the petroleum fields of America, and has repeatedly visited Baku since. England not long ago conferred upon him the Davy Medal, and his name is held in high esteem among English scientific men, although many of his works yet remain untranslated from the Russian language. Briefly, Professor Mendelaeff, after long research, particularly during a prolonged stay at Baku last year, has formulated the theory that petroleum owes its origin to water sinking through crevices in the earth's crust to the molten interior, where it undergoes a chemical change in coming in contact with the oxides of metals, and is ejected again towards the surface in the shape of gas, which gas parts with petroleum in passing through the cooler strata, and either issues through the pores of the surface in due course or remains below until liberated by the boring rod, when it shoots up accompanied with oil, or, as in the case of the "natural gas" wells of America, without it. Opinions vary at the exhibition as to the tenability of this theory; but, with the exception of Professor Lisenko or Mr. Gulishambaroff perhaps, there is really no one competent to criticise it, certainly not the oil producers themselves, whose scientific knowledge of the subject is extremly limited. To discuss the views put forth for and against it, however, would occupy too much space, and would, moreover, be of very little value, since the question of the practical inexhaustibility of the copious Baku supply for many years to come rests not upon any theory, but upon facts beyond the reach of criticism.

No attempt has been made at the exhibition to show any boring instruments nor the operation of boring, except by means of a few diagrams displayed by the Nobel firm. The cost of sinking a well ranges from £1000 to £1500. What can be obtained for such an expenditure may be illustrated by the result of boring the Droojba well, which cost £1500. This spouted for 115 days, the yield being 3,400 tons a day for 43 days, 1,600 tons a day for 31 days, 900 tons for 30, and 600 tons for 11 days. The well was then capped over, and the supply kept underground for further wants. The total amount of oil spouted by this well, according to the lowest estimate, was 220,006 tons, or 55,000,000 gallons, and according to the highest, 500,000 tons, or 125,000,000 gallons. Had the oil been in America, it would have realized a million sterling. At Baku the bulk of it was lost. The same was the case with the great Markoff fountain last year, which spouted oil and sand 400 feet high—a veritable volcano. On windy days the oil spray was carried 8 miles away. The Markoff fountain was situated not far off the Droojba, which pessimists had prognosticated erroneously would drain the whole area. On this occasion the Russian Government, which had been angered by the waste of oil from the Tagioff fountain—which spouted 11,000 tons a day the previous year, and endangered the town of Baku by raining oil upon it, although three miles away—gave permission to the other Baku firms to lynch the "gusher" at the owner's expense. Accordingly they sent their best engineers to the spot, and after several unsuccessful attempts the well was finally capped over, and a stop put to the disgraceful waste of oil. All the same, no law exists to prevent any foreigner or Russian repeating the same destruction to-morrow. Large firms, like Nobel Brothers, mostly manage to have good engineers and the best appliances on the spot to check a "gusher" at the outset, and allow the supply to flow as they want it; but the native firms bore heedlessly, and for want of "caps" at the right moment, all control is lost over the well, and it belches forth millions of gallons of oil, forming rivers that flow away to the Caspain Sea or sink into the earth again. To-day's telegrams from Baku announce that such a one is spouting at the present moment, causing the price of crude oil to fall to 20 gallons for a penny. If there happens to be a slight rise in the price of oil—*i. e.*, if it rises above a penny for 10 gallons—the large firms build reservoirs and catch some of the oil, for which they pay a mere trifle; but if oil is plentiful at the moment no attempt is made to store it at all. Since 1871, when the first well was sunk, 500 bores have been made, of which 200 are in operation, producing, irrespective of fountains, 500,000,000 gallons of oil every year. This amount of petroleum is won with the greatest ease, and could be increased tenfold, or a

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hundredfold, if there were transport enough for the oil, and a sufficient demand in Europe. When one reflects on the trouble and toil which Scotland has to exert in order to get sixty or seventy million gallons of crude oil from shale every year, it is impossible not to feel that so far as concerns the power of producing enormous quantities of cheap crude oil Scotland has not got the ghost of a chance of competing with Baku. All the advantage of the start rests, and will continue to rest, with Baku. Any attempt at competition that ignores this fact is bound to prove unsuccessful. Rivalry must be established on other grounds—by better methods of refining and a cheaper system of transport.—ST. PETERSBURG, *March 23, 1888.*

EGYPTIAN PETROLEUM FIELDS.

Colonel Stewart has recently completed and submitted to the Egyptian Government a preliminary report on the result of his researches in the petroleum district, from which it would appear that he recommends experimental borings to the north of "Jebel Tor," on the opposite side of the Gulf of Suez, where he claims to have discovered many indications that justify the conclusion that good results will eventually be obtained.

His proposals, it is understood, will be given due consideration as soon as a supplementary report, with details as to cost, etc., can be prepared and examined.

It would seem from this that, nowithstanding the many disappointments that threatened to end with failure to which the Egyptian Government has been subjected in its experiments at "Jebel Zeyt" and "Gimsah," it is nevertheless disposed to venture additional sums in prosecuting the search for petroleum in the hope of finding it in sufficient quantities to compensate it for the enormous expenditures already incurred.

It will be remembered that it was confidently hoped and maintained that oil in remunerative quantities was more than likely to be encountered at a depth of about 1,000 feet; but the limit has long since been reached, and passed by many hundred feet, and the long and much wished for expectations are yet to be realized. It seems clear that the Government, having lavishly expended—not to say wasted—extravagant sums in the development of what promised to prove a source of great revenue to its greatly depleted and needy exchequer, does not appear to be willing or feel justified in relinquishing its exertions and labors until all hope of success must be finally abandoned.

Of the presence of petroleum over a vast area there exists no longer any doubt, but whether its extraction will ever yield a proper remuneration or return is yet problematical. It is not improbable that the present generation will have to follow the example of those that preceded them thousands of years ago, who, from indelible traces left to posterity, were fully aware of the existence of petroleum, but appear to have abandoned its exploitation as an unprofitable task.—BEIRUT, *March 1, 1888.*

ERHARD BISSINGER,
Consul.

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RAILWAY TUNNEL FROM LA GUAYRA TO CARACAS, VENEZUELA.

[TRANSLATION.—TRANSMITTED BY CONSUL W. S. BIRD.]

General Guzman Blanco, Envoy Extraordinary and Minister Plenipotentiary of Venezuela at various courts of Europe, on one part, and the La Guayra and Caracas Cable Company, by its attorney in matters of fact, Mr. T. W. Tyrer, on the other part, have celebrated the following contract, to wit:

ARTICLE 1. The National Government of Venezuela, by these presents, concedes to the La Guayra and Caracas Cable Company, to its successors and assigns, the exclusive right to construct, maintain and operate a cable road between the cities of Caracas and La Guayra, which shall be constructed by tunnel through the mountains directly between the two cited cities.

ART. 2. The National Government of Venezuela, by these presents, concedes to the La Guayra and Caracas Cable Company the exclusive right to construct, maintain and operate a cable road between the cities of Caracas and La Guayra for a period of ninety-nine years, and will not make a similar concession to any other company or person, nor any amendment to any existing contract that may in any way abridge the full and free enjoyment of the privileges that are hereby conceded.

ART. 3. The La Guayra and Caracas Cable Company hereby promises to construct a tunnel and cable road from Caracas to La Guayra of sufficient capacity to accommodate all the business that may be offered it, and to always maintain it in a perfect state of repair for traffic, saving and excepting every interruption that may occur on account of the breaking of machinery, obstruction of the way by inevitable causes, by insurrection, by military force or by judicial proceedings.

ART. 4. The La Guayra and Caracas Cable Company shall have the right to construct a tunnel between Caracas and La Guayra of such dimensions as may appear necessary for the full and convenient discharge of the business provided for in this contract.

ART. 5. The La Guayra and Caracas Cable Company shall have the right to construct a cartway in said tunnel for the service of vehicles, cattle, horses and all other objects for which it may be deemed proper.

ART. 6. The La Guayra and Caracas Cable Company shall have the right to collect for each person that passes over its line between Caracas and La Guayra the sum of three bolivars (57.9 cents) for each second-class seat and five bolivars (96.5 cents) for each first-class seat; and provided that a cartway is built there may be collected the sum of a half bolivar (9.65 cents) for each foot passenger over the line; two bolivars (36.6 cents) for each cart with horse or mule, and one bolivar (19.3 cents) for each donkey, cow, horse or other animal not hitched to a vehicle.

ART. 7. The La Guayra and Caracas Cable Company shall have the right to open a way of communication, to go and return, with the wharf and breakwater of La Guayra, and the right to construct depots and warehouses in La Guayra, in the locality that may be most convenient for the public, and that will assure the greatest facility for the works that may be required of it, and said cable company shall have the right of way in the city of Caracas, following the streets by which it may be necessary to extend its line as far as North avenue and Thirteenth street, and to construct in Caracas the edifices, warehouses, depots, machine shops and side-tracks that may be necessary for the best convenience of the public and of its business.

ART. 8. The La Guayra and Caracas Cable Company shall have the right to the public lands that may be situated on each side of their line to the distance of 500 meters, except within 500 meters of the seacoast, or within 50 meters from rivers, because the law forbids it. In case that the company may need a greater amount of public lands it may buy them according to the terms established in the law of June 2, 1882. In respect to the minerals that may be found in the public lands conceded by this contract, or bought by the company, it shall

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enjoy the rights conceded in the law of mines now in force to denounce them and to obtain judgment against them.

ART. 9. The La Guayra and Caracas Cable Company shall have the right to import, free of duty, all the materials, tools, machinery and other necessary articles actually employed in the construction, maintenance and service of said cable road and the depots and offices pertaining to it.

ART. 10. The payment of no national, state or municipal impost shall be demanded from the La Guayra and Caracas Cable Company for its railway property during the said period of ninety-nine years.

ART. 11. During the aforesaid period of ninety-nine years the La Guayra and Caracas Cable Company shall place its line at the service of the National Government whenever it may be demanded for the transportation of troops, materials of war, and other provisions and purposes of the Government, which service shall have preference over all other business over the line, and in compensation for said service the Government will pay to the aforesaid company the half of the fare that is at that time prescribed for the transportation of passengers and general merchandise.

ART. 12. The La Guayra and Caracas Cable Company shall begin the work of construction of said cable road within nine months, to count from the day in which this concession may have been ratified by the Government of Venezuela, in conformity with law, and thus completed, and it must finish said cable road in three years, counting from the day when the work is begun.

ART. 13. The La Guayra and Caracas Cable Company shall have the right to deposit on the seashore the stones and earth excavated in the construction of the tunnel for its railway, on the outer side of the breakwater now being built, commencing at the point of intersection of said breakwater with coast line, and extending to the north and east in such manner as not to injure the port of La Guayra, and all land thus formed by said company shall pertain to it, and may be appropriated to such purpose as the company may deem proper, and the said land shall be exempt from all taxes in the same manner as is disposed in respect to the property of the cable company.

ART. 14. This contract may be transferred to any other company or person after due notice given to the Government.

ART. 15. The doubts or controversies that may arise under this contract shall be settled according to the laws of the Republic and by its proper tribunals, in view of which the contractors will in no case have the right to international reclamation.

ART. 16. This contract, celebrated by virtue of the powers conceded by the Government to General Guzman Blanco, shall be subject to the ratification of the Government.

Made in duplicate in Paris, on December 2, 1887.

GUZMAN BLANCO.
T. W. TYRER.

UNITED STATES OF VENEZUELA, MINISTER OF PUBLIC WORKS,
DIRECTION OF WAYS OF COMMUNICATION, ACQUEDUCTS, AND ACCOUNTS,
CARACAS, *March 15, 1888.*— 24 and 30.

RESOLUTION.

The President of the Republic, with the vote of the Federal Council, has thought proper to ratify in all its parts the contract celebrated in Paris, December 2, 1887, between the illustrious American, General Guzman Blanco, Envoy Extraordinary and Minister Plenipotentiary of Venezuela to various courts of Europe, by virtue of the powers with which he is invested, and Mr. T. W. Tyrer, attorney in matters of fact of the La Guayra and Caracas Cable Company, to construct, maintain, and operate a cable road between Caracas and La Guayra, which shall be constructed by tunnel directly through the mountains between the two mentioned cities.

Communicate and publish it.

By the National Executive, J. C. DE CASTRO.

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EXPORTS FROM THE CONGO STATE

DURING THE MONTHS OF JULY, AUGUST, AND SEPTEMBER, 1887.

Products.	Special commerce.		General commerce.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.	*Fr. Ct.*	*Kilograms.*	*Fr. Ct.*
Arachides	5,294	1,588 20	25,997	7,799 10
Coffee			319,977	479,965 50
Caoutchouc	8,078	28,273 00	103,544	362,404 00
Copal	759	1,328 25	22,020	38,535 00
Palm oil	363,951	163,777 95	625,797	281,608 65
Ivory	12,085	241,700 00	26,626	532,520 00
Palm kernels	1,082,217	216,443 40	1,633,474	326,694 80
Sesame	1,532	428 96	14,780	4,138 40
White wax	1,188	1,306 80	11,648	12,812 80
Raw hides			7,870	8,657 00
Fibers			50,116	8,519 72
Wax			26,365	55,366 50
Miscellaneous				20,000 09
Total		654,846 56		2,139,021 47

ADULTERATION OF SPANISH WINES.*

During the year ending December 31, 1887, wines shipped from this consular district to the United States were valued at $624,037.75, and an examination of the invoices of Cadiz, Jerez, and Port St. Mary's shows that 2,470¾ butts, or 326,144 gallons, were invoiced at prices varying from $55 to $75 a butt of 132 gallons; or, excepting in the lowest instance, which was at 12 cents, from 38 to 56 cents a gallon. Of the remainder shipped to the United States 75 per cent. were invoiced under $1 a gallon, and prices were in many cases named at $3 to $5 by first-class houses, who export only the higher grades to well known houses in New York and elsewhere. Old houses admit that the demand for low-priced wines compels them to yield reluctantly and compete for the market by using Berlin spirits for rectification at one-half the cost of Spanish grape alcohol, which is sold at $125 to $150 a butt, according to the vintage, while German alcohol (never so low as now) is selling at $65 a butt under sharp competition and on long credit.

In 1886, 11,000 butts of the latter were imported into Cadiz, whose market for them is chiefly in Port St. Mary's, Jerez, Chiclana, Rota, Chipiona, and Sanlúcar, all wine producing towns in this province, having a total average vintage of some 75,000 butts. Wine made at Sanlúcar is not sherry, and quantities of the low wines shipped to Cette and Bordeaux are from the vineyards of Chiclana, Chipiona, and Moguer, in the adjoining province of Huelva.

The sherry district is included within the towns of Jerez and Port St. Mary's, a territory about a dozen miles square, and all wines produced outside have no relation to the true product—Manzanillo, a fine light wine from the adjoining district of Sanlúcar, not excepted.

*See page 43 of this volume.

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I have made inquiries in Cadiz, as well as in the sherry district, and although I hear rumors and partial and interested statements, and find small quantities invoiced as "Port" or "Madeira," and one lot at 12 cents a gallon, I have not been able to obtain evidence further than what appears from the invoices and the statements already made, that any shipments to the United States are adulterated, within the view of the royal order, unless the use of German spirits distilled chiefly from the potato, grains, and the beet should be considered as adulteration.

The royal decree adopts the definition that natural wines shall be considered adulterated which contain impure industrial alcohol, unless *rectified and purified;* and with the view of ascertaining the quality of that imported into Cadiz, I have made inquiries of the town chemist, whose duty it is to analyze them, and am informed that under a law of November 10th last he analyzed those already in the depot, as well as the importations since, finding only one lot that did not fulfil the conditions of purity, and which were allowed reexportation; but he thinks that the localities most likely to import impure alcohols are those of Barcelona, Tarragona, Valencia, and Alicante. He further informs me that no other chemical laboratory exists in this province except the one at this capital, and that no steps have yet been taken under the royal order of January 30, 1888, to analyze wines manufactured and sold in the province. The governors are obliged each month to forward a résumé of what the mayors have done to the Ministerio de la Gobernacion.

As to the view taken in Jerez respecting industrial spirits for fortifying wines, the letter of its mayor (published in Consular Report No. 86, page 332) and the address of the chamber of commerce of Jerez to the Minister of State (same reports, No. 81, page 42) agree as to the deleterious qualities of German spirits and its deplorable influence on the wine trade. The former declares that their misfortunes arise chiefly from its importation and use; that the cellars are "mysterious laboratories, whose secrets no one is allowed to penetrate"; that the spurious usurps the genuine, and denominating those as "liquids" which are sold from £10 to £15 a butt. The chamber considers the absolute alcohol by every means unfit for improving and strengthening wines, and distillations from grains, potatoes, beets, and all so-called industrials containing more or less injurious substances, and that all wine should be considered adulterated that contains substances foreign to the must of the grape.

Nearly all the 11,000 butts of Berlin spirits imported yearly into Cadiz is sold chiefly in this province, which does not now produce 75,000 butts of wine a year, more than half being of Jerez. If, as is claimed, only about 4 gallons are used to a butt of wine, it is difficult to see where it all goes, especially as Spanish alcohol is also used, and Cadiz imports only about one-twentieth of the total value that is yearly brought into Spain. — CADIZ, *March 24, 1888.*

DARIUS H. INGRAHAM,
Consul.

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SPANISH WINES.

I would remark, with regard to the wines and alcohols introduced into this city from places outside of this district, no idea can be formed thereupon as a data with regard to the amount of wines, in assimulation with those of this district, that may be used in blending after to appear and be shipped as sherry wine; inasmuch as much of those wines which enter this city from beyond its district is destined to the alembiques (stills) to be converted into spirits, which as such spirits is admissible for fortifying true sherry wines.

As regards alcohol, the amount which may be introduced into this city can not be taken as a proof of what is used for fortifying wines, inasmuch as large quantities are used in the manufacture of liqueurs, of which a number of manufactories exist in this city.

Referring to your observations with regard to the non-adulteration by use of Berlin spirits, when the decree of January 30 is complied with, I would remark that not only can those wines, invoiced at 40 and 60 cents per gallon, be considered not adulterated, but even lower-priced wines can come under that head. If the theory, as established by decree of January 30, is admitted, that the use of industrial spirits in fortifying wines does not constitute adulteration when the spirits, through having been clarified and depurated (as it is presumed all to-day are in compliance with said decree), are not injurious for consumption. Notwithstanding the foregoing, I consider all and any wine fortified with industrial spirits to be adulterated; inasmuch as such spirit not being produced from the wine — in any of its stages, either as must or wine — it is a different article from wine. The following are the definitions I find in the Spanish encyclopedia:

Falsificacion. — La alteracion de alguna cosa, hecha con animo de engañar.
Adulteracion. — Añadiendo cosas extrañas en alguna cosa.

The latter definition supports me in my assertion, that fortifying wines — no matter what wines they may be — with industrial spirits constitutes adulteration; albeit such spirits, when clarified and depurated, may not be considered injurious to the health. Although under the opinion of chemical authority the analysis shows the basis of all alcohols or spirits to be of the same chemical components, the point can not be refuted that spirits produced by burning must or wine and industrial spirits are not conscientiously the same thing. If in all senses they are the same, why are the consequences produced by using wine fortified with spirits, produced from, or as a product of the grape, and the use of wine fortified with other spirits so different?

No action has been taken by the Chamber of Commerce, or the Association of Shippers, of this city with regard to the Spanish decree of January 30, inasmuch as it is considered to be not beneficial to the wine trade if complied with. Regarding the recent order of the French Government, respecting the introduction into that country of Spanish wines, the opinion of the wine trade is unanimous that not only would the carrying out of said

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order completely ruin the Spanish wine trade in its export to France, but that said order constitutes a direct violation of the Franco-Spanish treaty *in re* wines for importation into France. In a day or two the Chamber of Commerce of this city will meet to discuss petitioning the Spanish Government to protest against the order in question of the French Government. The object of the French Government is clearly obvious, it simply being a protectionist act in support of the Algerian spirits. The tenor of the order, or its interpretation by the French customs, is such as to make it impossible for wines shipped, fortified from the Spanish, to compete with those fortified with the Algerian spirits. By said order the Spanish wines are either qualified by their alcoholic strength as pure alcohol, and so subjected to be imported into France under the extremely high alcohol tariff, by which competency on their part is not possible, or they are denounced as unfit for use as a beverage. With regard to what artificial or chemical matter may be used as coloring in the preparation of wines, I am completely ignorant, and where such is employed it is undoubtedly a complete secret with the preparer.

Without doubt where falsification, bona fide, of wines sent out from this city as sherry wines takes place, it is principally with those for consumption in Spain. From my own experience I can frankly say that it is my firm belief that other than where the fortifying wines with Berlin spirits can be considered as adulteration, no falsification or adulteration bona fide is practiced with wines exported to the United States and Great Britain. In answer to your question regarding the laboratory that should exist in this city in compliance with decree of Spanish Government, I would submit for your persual the enclosed communication of the mayor of this city in answer to my inquiries on the subject.

From other and good authority I am informed that the instructions of the decree of January 30 are strictly adhered to by the local authorities of this city. Although it is presumed the Berlin spirits are analyzed at port of entry, those arriving at this city are examined and analyzed. Besides official visits are made—impromptu—to liquor-selling establishments, and samples of the articles obtained are analyzed.

Considering they may interest you, as referring to the wine trade of this district, I would mention the following particulars: The vintage of 1886 produced from 50,000 to 60,000 butts of must, and that of last year was very little less. The vineyards produced last year more or less must, as follows: Arenas, about 80,000 arrobes; and Afueras, 100,000 arrobes. The proportion of must produced last year was, as an average, Arena vineards, 4 butts per arransada; Afueras, fully 3.

The average alcoholic strength of last year's must was 13½ degrees, and in many cases 15 degrees were obtained. Nevertheless, the crop was weak in alcoholic strength.

JAMES A. HALL,
Consular Agent.

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[TRANSLATION.]

Letter of the Mayor of Jerez on the establishment of a chemical laboratory for analyzing alcohols and wines.

In reply to your note of the 20th instant, I would inform you that in order to comply with the rigorous rules last made by the Ministry of the Government, there has been established in this city, at municipal expense, a chemical laboratory for analyzing alimentary substances, and more especially industrial alcohols.

As the said Ministry has, by virtue of a Royal decree, declared that it is the province of the Mayor to have examined goods intended for public consumption entirely independent of the custom-house laboratories, and would further inform you that this laboratory analyzes and will analyze industrial spirits which are brought in, and will energetically repress the introduction of alcohols noxious to health, and other adulterated or poisonous substances.—JEREZ, *March 22, 1888.*

E. FREYNE,
Mayor ad int.

PORK IN DENMARK.

Two orders, relating to the transportation and exportation of hogs, have recently been issued by the Danish Government and published in the papers here. The first of these, issued March 10, is as follows:

The Minister of the Interior's order, of November 25, 1887, relative to the prohibition of the sale or other exchange of hogs or pigs at fairs or on market days, as well as the said Minister's order of November 29, 1887, relative to prohibition of the transportation of live hogs or pigs between the various parts of the country, are hereby repealed so far as Jutland, Funen, together with their adjoining islands—Samsö included—and Bornholm are concerned. On the other hand, the orders named remain in force as regards Sealand and Lolland-Falster, together with their adjoining islands, until further notice. In accordance herewith the inter-district transportation of hogs and pigs among the districts first named, as well as the transportation of same from these districts to Sealand and Lolland-Falster, together with their adjoining islands, is for the future allowed, while all inter-transportation of hogs and pigs between Sealand and Lolland-Falster, together with their adjoining islands, as well as all transportation from these districts to other parts of the country, is still prohibited until further notice.

The second order, issued March 13, 1888, provides that:

The prohibition of the transportation of hogs and pigs from Sealand and Lolland-Falster to other parts of the country, as contained in the Minister of the Interior's order of November 29, 1887, and repeated in the order of March 10, 1888, shall not be construed as prohibiting the transportation through other parts of the country of such hogs, from Sealand and Lolland-Falster with the adjoining islands, as are intended for exportation via Esbjerg, providing such transportation take place under the following conditions, viz:

1. The transportation to take place either direct by railway to Esbjerg, or by steamer to Kolding, and thence by railway to Esbjerg.

2. The hogs under way not to be unloaded from the cars or steamers in which they are transported.

3. No other hogs, intended for unloading at any station on the route, to be loaded upon the same cars or steamers together with the hogs designed for exportation; and

4. The cars and steamers used in the transportation to be disinfected in the usual manner before being used as transports for other hogs.

From this latter order it will be seen that every possible precaution is to be taken against the spreading of the hog-diptheritis in Denmark by the

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transportation through the country of hogs from the Sealand and Lolland-Falster districts intended for export to other countries (viz. England). As the English markets are closed against Danish pork and its products, I can only explain this phenomenon by the inference that living hogs are allowed to be landed in that country, but are inspected and slaughtered on the spot, an explanation which is supported by the advertisement of a large steamship company of this city to the effect that living hogs will be received for transportation to Hull and stating the animals, "according to English law," will be subject to slaughter at the place of landing. — COPENHAGEN, DENMARK, *March 15, 1888.*

R. B. ANDERSON,
Consul-General.

PORTUGUESE INFLUENCE IN AFRICA.

An expedition of land and sea forces under the command of Señor Joan Antonio de Brissac das Neves Ferreira, Captain of Frigates, Governor of Congo, has taken military occupation in the name of the King of Portugal of a tract of land north of Loando and Ambriz, in the neighborhood of parallel 7 degrees south and known as Ambrizette.

Though the strong natural limit of Angola, *i. e.*, as regards climate, fauna and ethnology is from the Congo River to Cape Frio, yet the country occupied by the Portuguese, until this later addition, was only from Ambriz to Mossamedes.

The natives inhabiting this part of the coast are called "Mussurongos." The natural effect of the slave trade was to encourage them into indolence, but since all hope of it being again established has passed away, the development of produce in this district and from the interior has been great, and promises to become much greater and very important in amount. At present most of the produce comes from the interior. The system of trade differs from that of other points, and is complicated and curious. All produce, except ivory, on being brought to the trader is weighed and price agreed in English "longs" or Portuguese "pecas." The peca or long is the unit of exchange to which all articles of barter are referred. For instance, 3,000 blue glass beads, 6 yards common cotton cloth, etc., are equal to a long or peca, articles of greater value are more longs each.

Being unwise to allow the natives to enter the factories, the buyer gives the seller a paper with the number of longs or pecas written on it, which the holder presents at a window of the store when he receives its value in goods. It can be imagined what shouting and noise there must be when hundreds are gathered before one window each clamoring to be paid first; but practice has enabled the trader to become so expert in the handling of these people that the chattering crowds seem to melt away. The principal products are: coffee, pea nuts, fiber, sesamum seed, red gum copal, white angola gum, India-rubber, palm kernels, palm oil and ivory.

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Several mineral deposits of more or less value are known the most important are, one of mineral pitch and another of malachite, but the natives, through fear of annexation, have made these deposits "fetish," and as they are reached via the beautiful Ambrizette River, unfortunately navigable only by canoes, the natives allow no white men to go further toward its source than a few miles.

This expression of the policy of the Portuguese is in accord with their many efforts to promote the interests of the province giving them an added influence in the Congo and making Angola more interesting to the commercial world.

HENRY F. DOWNING,
Consul.

RAILROADS IN VENEZUELA.

On the 16th ultimo the railroad between this port and Valencia was formally opened by President Hermogenes Lopez.

The Puerto Cabello and Valencia Railroad, as it is called, was commenced a little more than two years ago by Perry, Caruthers & Co., of London, contractors. On the 1st of April it will pass into the hands of the company, of which Mr. W. Mallon is general manager. The gauge is 3 feet 6 inches—6 inches wider than the track between Laguayra and Caracas.

The distance is 54 kilometers. Valencia, the southern terminus, is a city of some 40,000 people, and is situated in the heart of one of the richest agricultural regions in the country. In fact, it is admitted that the States of Carabobo and Lara are the first in agricultural development in the entire republic. Another railway, from Caracas to Valencia, about 300 kilometers in length, is in process of construction by an English company. It is reported that Krupp, of Krupp gun fame, has a concession for still another railway between the two cities mentioned above.

Another railway is projected between this port and Aurare, which is not far from the Apure River, one of the principal tributaries of the Orinoco on the north. This is also about 300 kilometers in length.

There is still another line of railway—already commenced—in this consular district, extending from La Luz to Barquisimeto, a distance of 85 kilometers.

These lines will open up a great agricultural and mineral district, facilitating greatly the movement of merchandise to this port, and will doubtless build up and develop the country's resources more largely, and materially improve and advance the interests of the people throughout the entire country, and will be the best means of placing the government on a much more stable basis than it has ever had.—PUERTO CABELLO, *March 15, 1888.*

DAVID M. BURKE,
Consul.

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NORWEGIAN HERRING FISHERIES.

The winter's herring catch, which commenced in the middle of January, is now finished and the fishing hands are returning home. According to the official report, the whole return of this season only amounts to 61,000 barrels, valued at 222,000 crowns, against a catch in 1887 of 175,000 barrels, worth 325,000 crowns, and is the smallest one for the last six years. The principal cause for this decline is generally attributed to the unfavorable, very frosty weather, and partly to the very decreased number of fishing hands collected at the banks. The greater part of the herring caught early in the season, about 35,000 barrels, was all cured, but after the close of the catch on the Swedish coast, the principal quantity was exported fresh on ice and also smoked mostly to England, and small lots to Belgium, Holland, and Hamburg. During the latter part of the season the size was small and not suitable for curing. It was fortunate to have the English markets so near at hand for the sale of the fresh and smoked article.

The prices, to the great satisfaction of the producers, advanced during the season from 4 to 7 crowns per barrel, and the shipments have given to the merchant as well as exporters a satisfactory profit. During the two last years the mode of treatment of the article has been more careful, and on the whole improving, and the six large establishments for smoking herring, near Haugesund, have been busily engaged during the whole season for the English market, where the article has brought good prices. — BERGEN, *March 22, 1888.*

F. G. GADE,
Consul.

INDUSTRIES OF MORRISBURG, ONTARIO.

This consular district comprises the united counties of Dundas, Stormont, and Glengarry, embracing an area of 777,347 acres of fertile and productive land. Ninety-three cheese and a number of butter factories are established within its limits, the products of which go to Liverpool. The chief exports to the United States are eggs, sheep and lambs, barley, hay, hides, cattle, and horses, the latter in large quantities, there being a great diversity of blood, style, and some of which is very superior stock. The village of Morrisburg, in which this commercial agency is established, contains two thousand inhabitants, being pleasantly situated on the northern bank of the St. Lawrence River. It has also a few small mills and shops which give employment to about one hundred and twenty-five persons. A daily steam ferry between here and Waddington, in the State of New York, facilitates business and travel. With one exception it is the only steam winter ferry on the St. Lawrence River. The inhabitants are well to do, and usually treat Americans with great kindness and respect. Cornwall, a consular agency under this commercial agency, is a flourishing manufacturing village, containing a population of seven thousand, and is also situated on the bank of the St. Lawrence River, 28 miles east of Morrisburg. It contains two cotton mills, one woolen and one paper mill, which give employment to fifteen hundred hands, and also several smaller establishments that furnish additional employment to two hundred persons. There are located in this district several smaller villages, some of which are growing rapidly.

Railroads. — The Canada Pacific, Grand Trunk, and Canada Atlantic Railroads intersect this consular district. The Canada Pacific having been completed through here the past summer.

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Emigration.—Eighty-six persons, many of whom had families, emigrated from here to the United States during the past year.

Exports.—The exports from this district to the United States for the year ending December 31, 1887, are as follows:

	Value.		Value.
Ashes	$99.00	Machinery	$50.00
Barley	2,906.69	Miscellaneous	382.55
Beans	1,753.28	Musical instruments	30.00
Cattle	1,389.50	Oats	225.12
Dressed poultry	911.20	Personal and household effects	21,013.90
Eggs	181,795.93	Railroad ties	1,250.00
Hay	8,722.98	Sheep and lambs	37,127.02
Horses	75,214.00	Swine	38.00
Hides and skins	8,225.46	Woolen cloth	1,520.71
Live poultry	257.53		
Lumber	4,069.97	Total	346,982.84

The chief imports from the United States to this consular district are coal and petroleum. The following are the imports for the year ending December 31, 1887:

13,855 tons anthracite coal	$64,357.00
1,706 tons bituminous coal	6,530.00
65,976 gallons kerosene	5,595.00
Total	75,482.00

Even at a considerable advance in price American petroleum is preferred by consumers; the quality being better, it being free from smoke and the disagreeable odor that accompanies the Canadian oil. The quality imported is what is commercially known as 150° prime white. If the American refiners would push the sale of oil in Canada they could greatly increase their sales.—MORRISBURG, ONTARIO, *January 24, 1888.*

SELLAR LEISHMAN,
Commercial Agent.

MANUFACTURE OF CHINA IN LIMOGES.

China is selling at a lower rate now than it has been for many years in Limoges, the reasons being that the price of labor has decreased 10 per cent. in the last five years; machinery has in many instances replaced hand-labor; and one class of workmen, the saucer-makers, has entirely disappeared since the strike of 1883. The rates of interest and insurance greatly favor the manufacturer. The price of coal and wood is lower than in previous years, the former costs from 25 to 35 francs per ton, delivered at the factory; the price for the latter is from 10 to 12 francs a stére, which is about one-third of a cord. The year 1887 shows a decided increase in the production of china; there was a steady decline from 1882 to 1886. The following table, carefully compiled, shows the decline and rise in the manufacture of china at Limoges and vicinity since 1882, which gives 1,945 furnaces, *i. e.* the number of firings or baking in 1887, against 1,851 for 1886, when the minimum was reached. The increase last year was nearly 100 furnaces, amounting to half a million francs.

Year.	Coal furnaces.	Wood furnaces.	Total.
1882	2,599	507	3,106
1883	2,239	544	2,783
1884	1,895	448	2,343
1885	1,560	335	1,895
1886	1,528	323	1,851
1887	1,621	324	1,945

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From these statistics it will be noticed that some manufacturers burn wood, although it is more expensive than coal. The reason of this is, that they think the sulphurous fumes from the coal injure the color of the china. Few colors have yet been discovered that will resist the gases of coal, so wood is used exclusively to heat the "*mouffles*," the furnaces where the paintings are fired. Limoges china is in demand all over the world, but by far the greatest share goes to the United States. The production last year amounted to over 8,000,000 francs, nearly one-half of which was exported to our country. Freight charges are, from Limoges to the United States, from 83 to 120 francs per ton. The exporters as a rule speak hopefully of business and report better prospects this year than they have for a number of years.—LIMOGES, FRANCE, *March 5, 1888.*

WALTER T. GRIFFIN,
Commercial Agent.

EMIGRATION FROM AND IMMIGRATION INTO THE UNITED KINGDOM IN 1887.

[REPORT OF MR. GIFFEN.]

In presenting the accompanying tables relating to emigration and immigration from and into the United Kingdom during the year 1887, I desire, as in former years, to call attention to the general features of this movement, so far as they are disclosed by the returns collected by this department. In view, however, of the attention which has lately been directed to European immigration into this country, it is perhaps desirable to again point out that no information on this subject is contained in the following tables, which relate solely to the movement of passengers between the United Kingdom and places out of Europe and not bordering on the Mediterranean.

Examining first, then, the *gross* amount of such emigration, it appears that the expansion in volume of this outward current which occurred in 1886, as compared with 1885, has been continued during the year just ended, the numerical increase being very nearly the same. The figures are:

Emigration in 1885, 1886, and 1887.

	Total, including foreigners.	Emigrants of British and Irish origin only.
Number of emigrants in 1887	396,494	281,487
" " " " 1886	330,801	232,900
" " " " 1885	264,385	207,644
Increase in 1887	65,693	48,587
" " 1886	66,416	25,256

As will, however, appear from this table, the expansion of *total* emigration, though considerable, has proceeded at a diminished rate, the figures for 1887 showing an increase of rather less than 20 per cent. over the numbers given for the previous year, while the 1886 figures represent an increase of about 25 per cent. over 1885.

In 1886 the increase in the number of emigrants was especially marked in the case of those of foreign origin, while in 1887 it occurred chiefly among the British and Irish emigrants, the numbers of these rising from 232,900 in 1886 to 281,487 last year, an increase of nearly 21 per cent., as against 12 per cent. only in 1886. The total number of foreigners who emigrated from ports of the United Kingdom in 1887 was 108,572, as against 94,370 in 1886, an increase of only 15 per cent., while the advance of this class of emigrants in 1886 as compared with 1885 was one of 75 per cent.

The number of British and Irish emigrants in 1887 (281,487) is the largest yet reached in any year since the nationality of emigrants has been distinguished, with the exception of 1883,

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when the number was 320,118. Taking the population of the United Kingdom at the middle of 1887 as 37,091,564 (according to the estimate of the registrar general), the proportion of emigration (of British and Irish) thereto was for that year .76 per cent., a higher rate than that of any previous year since 1854, except the year 1882, when it was .79 per cent., and the year 1883, when it was .90 per cent.

Of the *gross* number of passengers from the United Kingdom (hitherto dealt with) many are, of course, not emigrants in the proper sense of the word, but travelers on business or pleasure. The great majority of cabin passengers no doubt belong to the latter class, and some idea of the proportion borne by such travelers to the emigrants, strictly so called, and of the development in recent years of this passenger movement, may be gathered from the following statement:

Number of cabin and steerage passengers leaving the United Kingdom for places out of Europe in each of the years from 1876 to 1887, inclusive.

Years.	Cabin Passengers.	Steerage Passengers.	Total.
1876	41,900	96,322	138,222
1877	37,147	82,824	119,971
1878	43,168	104,495	147,663
1879	43,928	173,235	217,163
1880	50,734	281,560	332,294
1881	54,270	338,244	392,514
1882	56,739	356,547	413,288
1883	55,840	341,317	397,157
1884	57,403	246,498	303,901
1885	51,428	212,957	264,385
1886	59,382	271,419	330,801
1887	60,754	335,740	396,494

From these figures it appears that the number of cabin passengers is, in the main, steadily increasing, and is not liable to the fluctuations noticeable in the numbers of steerage passengers.

Some small part of the emigration from the United Kingdom to the United States has of late years been effected by way of the continental ports—Antwerp, Rotterdam, and Amsterdam—and of such passengers no account is taken in the appended set of tables. The figures for last year are subjoined, and may be compared with similar figures in previous reports. It will be seen that emigration by this indirect route is small, and shows no tendency to increase.

Emigration from the United Kingdom to the United States in 1887 via continental ports.

Nationality.	Married males.	Married females.	Single males.	Single females.	Males under 12 years of age.	Females under 12 years of age.	Total males.	Total females.
English	449	273	700	150	148	169	1,297	592
Scotch	35	16	38	19	4	18	77	53
Irish	25	23	28	22	11	27	64	72
Total	509	312	766	191	163	214	1,438	717
Foreigners	277	161	446	138	74	99	797	398
Grand total	786	473	1,212	329	237	313	2,235	1,115
Corresponding figures for 1886:								
Total British and Irish	407	311	1,027	229	145	173	1,579	713
Foreigners	239	170	582	168	82	104	903	442
Grand total	646	481	1.609	397	227	277	2,482	1,155

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The return current of immigration falls next to be considered. The total amount of immigration is seen from the following table:

Immigration in 1885, 1886, and 1887.

	Total, including foreigners.	Immigrants of British and Irish origin only.
Number of immigrants in 1887	119,013	85,475
" " " " 1886	108,879	80,018
" " " " 1885	113,549	85,468
Increase in 1887	10.134	5,457
Decrease in 1886	4,670	5,450

This shows an increase in number both of foreign and of British immigrants in place of the decrease noticeable last year. This increase in immigration, coupled with a continued increase in emigration, is in exact accord with the rule to which attention has been called in previous reports: "An increase of immigration accompanies generally an increase of emigration, and reaches its maximum in those years when the emigration begins to fall off from the maximum it has itself reached, and then in the succeeding years emigration and immigration both decline; the minimum, however, in the case of emigration preceding the minimum in the case of immigration, which, as a rule, occurs in the first year after the emigration, having declined, begins again to increase."

The importance of a record of immigration is obvious, as, in order to properly estimate the extent to which a transfer of population takes place in any year from the United Kingdom to other countries, the number of immigrants should, of course, be deducted from the gross number of emigrants. The *net* emigration for the last three years, as thus calculated, is seen from the following table:

Excess of emigrants.

	Total number of passengers.	Passengers of British and Irish origin only.
Number of emigrants in 1887	396,494	281,487
" " immigrants "	119,013	85,475
Excess of emigrants in 1887	277,481	196,012
Corresponding excess in 1886	221,922	152,882
" " " 1885	150,836	122,17.

The *total* surplus emigration (*i. e.*, including foreigners) has thus again increased during 1887, though not to the extent observable in 1886, when the effect on the balance of population of an increase of emigration over 1885 was enhanced by a simultaneous small decline of immigration. On the other hand, the net emigration of persons of British and Irish origin only has increased even more than in 1886, the 1887 figures representing an advance of 28 per cent. over those for 1886, while these again showed an advance of 25 per cent. over the numbers returned for 1885. The proportion of *net* British and Irish emigration to the total estimated population of the United Kingdom at the middle of the year was (for 1887) .53 per cent., as compared with .42 per cent. in 1886, and .34 per cent. in 1885, which was the last *minimum* year of emigration. This net emigration *proper* was composed of 93,628 adult males, 64,628 adult females, and 37,756 children (under twelve years), males being thus 29,000 in excess of females, while children were in the proportion of nearly 20 per cent. This excess of males occurs chiefly among the English and Scotch emigrants, the sexes being nearly equal in number among the Irish.

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To the *gross* British and Irish emigration the Irish, in 1887, contributed 28 per cent., a proportion slightly greater than that of the preceding year, but still below the average proportion for the last three quinquennial periods — 1871–'75, 1876–'80, 1881–'85 — and far below the high rate observable in the years preceding 1869–'70. Scotch emigrants maintain about the same proportion as in former years, viz., 12 per cent., leaving 60 per cent. to be accounted for by the English emigrants.

By far the greater number of emigrants still select the United States as their country of destination, the proportion going thither of the total number of British and Irish emigrants being 72 per cent. in 1887, as against 66 per cent. in 1886; 34,183 (12 per cent.) went to the Australasian colonies, as against 43,076 (or 18 per cent.) in the previous year; while 32,025 (or 11 per cent.) proceeded to British North America, the proportion being unchanged from that of 1886, though the number is higher by 7,280. Taking English emigrants separately, the proportion going to the United States in 1887 was 63.6 per cent.; to British North America, 14.6; and to Australasia, 14.9; while of Irish emigrants no less than 87.6 per cent. were bound for the States. During the thirty-five years from 1853 to 1887, neglecting the return current of immigration, of which for the early part of this period there is no account, nearly 4,250,000 persons of British and Irish origin have left the United Kingdom for the United States, 2,165,532 of these being Irish. Some idea of the effect which this movement from our shores still exerts on the population of the United States, Canada, and the Australasian colonies may be gathered from the following table, compiled from the census tables of each of the countries named on the left-hand side of the table, in which the figures relate to the census year 1881, or, in the case of the United States, 1880.

Number of persons born in the United Kingdom forming part of the population of the countries named, and proportion of such persons to the total population of those countries.

Country.	Population.	Born in England.	Born in Scotland.	Born in Ireland.	Total born in the United Kingdom.	Percentage born in the United Kingdom.
United States	50,155,783	747,462	170,136	1,854,571	2,772,169	5.5
Canada	4,324,810	169,504	115,062	185,526	470,092	10.9
Australasia :						
New South Wales	751,468	110,674	25,079	69,192	204,945	27.3
Victoria	862,346	147,453	48,153	86,733	282,339	32.7
South Australia	286,211	59,151	10.637	18,246	88,034	30.8
Queensland	213,525	37,390	9,929	27,295	75,614	35.4
Western Australia	32,054	6,760	732	2,975	10,467	32.6
Tasmania	115,705	17,307	3,744	7,192	28,243	24.4
New Zealand	534,030	121,387	52,753	49,363	223,303	41.8

To these figures it may be added that the total German born population of the United States at the census of 1880 was returned as 1,966,742, or 3.92 per cent. of the total population, a proportion slightly higher than that of the inhabitants of Irish origin, who formed 3.70 of the population. It may assist in realizing the meaning of these figures to remember that the total number of foreign-born residents in the United Kingdom at the last census was only 135,640, or rather less than .39 per cent. of the population. This is not the place to trace the manner in which the foreign element distributes itself over the United States, as to which some interesting particulars are contained in the census tables for that country; it may, however, be mentioned that of the total population of the State of New York, numbering 5,082,871, no less than 1,211,379, or nearly one-fourth, are returned as foreign born, while even this proportion is exceeded in the States of Nevada, Minnesota, and California, and the Territories of Arizona and Dakota, in each of which the foreign-born settlers are more than a third of the total inhabitants.

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In the city of New York itself, out of a total population in 1880 of 1,206,299, there were 237,935 returned as born in the British Isles, viz., 30,657 in England, 8,683 in Scotland, and 198,595 in Ireland—the Irish element thus amounting to 16.5 per cent. of the population of the city.

The decrease in emigration to Australia noticeable in 1887 is no doubt to be attributed in part to the reports which have reached England of the overstocking of the labor market. It has also to be remembered that free passages are at present not granted to any of these colonies except Queensland, and that assisted passages are only granted to Queensland, West Australia, and New Zealand, and these under strict limitations. It has frequently been noticed in former reports that emigration to Australia has been largely an assisted emigration, and has risen or fallen as assistance has been given or withheld.

The general increase in emigration, and especially the increase in emigration to the United States, may no doubt be considered as an additional sign of the revival of trade. As has been pointed out in previous reports, there is an oscillation in the amount of annual emigration broadly corresponding to variations in general trade prospects, and particularly to such variations in the countries of destination. Emigration rises or falls as trade is brisk or dull. The last minimum point was reached in 1885, and in the last two years there has been a marked expansion in emigration. There are signs of the revival of trade being likely to make progress for some time to come, and it remains to be seen whether this hope will be realized and whether a continued development of emigration will take place in the current year.

A few years ago, in consequence of the interest in the question as to the operation of the immigration laws of the United States regarding pauper aliens, the board of trade requested their principal officers at the different ports to obtain returns from the shipowners of the number of emigrants rejected by the United States authorities and sent back to the United Kingdom on the ground that they were likely to become public charges. During the last two years the returns thus obtained are believed to have been complete, and the general results are shown in the following table:

Number of emigrants who were rejected by the United States authorities and sent back to the United Kingdom during the years 1886 and 1887.

Nationality.	Adult males.	Adult females.	Male children.	Female children.	Total males.	Total females.	Total.
1886.							
British and Irish	27	43	4	5	31	48	79
Foreigners	37	29	15	10	52	39	91
Total	64	72	19	15	83	87	170
1887.							
British and Irish	32	29	9	10	41	39	80
Foreigners	5	7	3	3	8	10	18
Total	37	36	12	13	49	49	98

From this it appears that the number of emigrants rejected and returned in 1886 was 170, and in 1887 the number was 98. The number of British and Irish included was in each year about the same, viz., 79 in 1886, and 80 in 1887, while the number of foreigners included amounted to 91 in 1886, and to 18 only in 1887.—COMMERCIAL DEPARTMENT, BOARD OF TRADE, *February 6, 1888.*

R. GIFFEN.

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THE DANISH BUTTER MARKETS.

The unfavorable conditions of the dairy drift, fully as much as the low prices of grain, have been weighing heavily on Danish agriculture. The milk production in the past year, speaking comparatively, has been of an unsatisfactory character, mainly on account of the long duration of general lack of pasturage, caused by the unusually long drought. Butter prices have been bad—lower, indeed, for a time than had been experienced for many years; and swine, which make a large share in promoting dairy profits, have also been a source of great disappointment, more especially towards the close of the year, when the plague of swine fever first made its appearance. On the other hand, prices of flour, which now play a very prominent part in all dairies, have ruled low throughout the year; and milk, excepting in the scant grazing season, has been produced relatively at smaller cost, so that the poor butter prices have been made more endurable than when butter had to be produced at former prices. Thanks, also, to the large number of union dairies which were established in the course of last year, many of the small proprietors, notwithstanding the dull butter prices, have been enabled to obtain better returns from their cow keeping than had been known to them in previous years. The steady increase in the kingdom's butter exports may also be said to be due to these dairies.

PRICES.

The year 1887 opened the same as in 1886, with a price of $27.87 per 100 pounds Danish weight (110½ pounds American weight) for best export butter, but at the close of January prices had declined considerably, so that up to the first two weeks in February it stood at only $24.12. It shortly advanced again, maintaining during five weeks in February and March the price of $26.26. At the close of March a decline again set in, and prices receded week by week until the close of May, when the minimum point was reached of $18.76, remaining at this low figure during two weeks. In June an advance commenced, only by small steps, but continuing steadily, without any retrogressive movement, until prices in the beginning of the month of October attained the maximum point of $28.94. During five weeks it was enabled to maintain this position, when a decline again took place, and the year closed with the price of $26.26—$1.61 below that of the year's commencement. In comparison with 1886 the last year will be found to have stood 54 cents lower both in maximum and minimum prices; but taking an average, it is seen to have been almost exactly the same in both years, viz., $25.32.

For the purpose of comparison with the average prices of best export butter during the last sixteen years, the following official notings of the butter committee for those years are given on the succeeding page.

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1887	$25 32	1879	$27 34
1886	25 19	1878	30 28
1885	26 80	1877	31 90
1884	29 20	1876	34 04
1883	30 02	1975	31 90
1882	31 36	1874	32 96
1881	32 16	1873	29 75
1880	31 36	1872	27 34

The average price for these sixteen years is thus seen to have been about $30.10, or $4.78 above that of last year, and in one of these years was about $8.70 higher than in the year 1887.

The prices for ordinary and best export butter during last year have kept their relative positions fairly well, although the good advance in the late summer months and in the autumn was not equally obtained by the ordinary class; and while the price difference between the two classes in the months of April–June was, as a rule, no more than an average of $2.70, this in the autumn amounted to an average of $7.50. The average price for ordinary butter for the entire year was $20.10, or $5.22 below that for export butter. The highest price obtained for the ordinary class was $21.98 (during five weeks), and the lowest $16.08 (for two weeks), a difference of $5.90. It may also be mentioned that the poorer the quality of the butter, so much fewer variations in the price has it been subjected to. Only in the months of April and May were any changes of price to be noted for this poorer grade of butter, the remaining months of the year showing no change worth mentioning. The highest price obtained in the year for this class was $16.08, and the lowest $13.40, so that the difference during the whole course of the year was only $2.68. This description of butter has also been paid somewhat better than in the year 1886, when it never reached higher than $15, and for several months was not above $10.72. The average price for 1887 was $14.47, or $2 above that of 1886, and in the latest preceding years the average price for this poorest grade of butter may be said to have fluctuated between the figures $17.15 and $14.34.

On the 1st of January of the present year the new margarine law went into force in England. There are thus good grounds of hope that this may be the means of creating a more lively demand, together with a tendency to higher prices, for export butter, even though there may be no great prospects of such good prices as were known in the middle of the seventh decade of this century. The fate which may attend the Artificial Butter bill in the Danish chambers will also doubtless exert much influence on the future position of Danish butter in the English markets. In every case, indefatigable attention and persevering work with respect to the quality and uniformity of the butter will be found absolutely necessary to enable Danish butter to retain the good name which it has by degrees obtained for itself. — COPENHAGEN, *February 27, 1888.*

HENRY B. RYDER,
Consul.

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TRICHINOSIS IN SAXONY.

The Saxon Landtag has passed a law making microscopical examination of swine and swine's flesh compulsory, with a view to preventing the spread of trichinœ and trichinosis. The number of deaths from the latter disease in Saxony has been larger during the past winter than for a long time previously. Cunewalde, a small town near Dresden, has suffered the most. Quite a number of deaths have occurred, the exact number I am unable to say, and about one hundred persons are still sick with the disease. The relief committee report that they have thus far received cash contributions amounting to 39,000 marks, and they expect to relieve all distress with the sum on hand. They say they require 2,000 marks weekly.—ANNABERG, SAXONY, *March 29, 1888.*

GEORGE B. GOODWIN,
Consul.

AFFAIRS IN MEXICO.

[MESSAGE OF PRESIDENT DIAZ.—TRANSLATION.]

Messrs. Deputies—Messrs. Senators:

Upon meeting you on this, the occasion of the closing sessions of this present Congress, it gratifies me to advise you that complete peace prevails through all the confines of the Republic; and now, in compliance with the duty assigned to me under the constitution, I proceed to give you an account of the condition of public affairs of the country. Our relations with foreign countries continue upon a basis of perfect harmony, and each day finds the links binding us to them drawn closer and closer.

As I announced in my last message, we are waiting for the American Congress to authorize the expenditures by the commission which, in accord with our own, is to re-locate the boundary-marks dividing the two countries. In connection with the provisions of the treaty in force between Mexico and her neighbor on the north touching the change of channel-course of the Rio Bravo, investigations have been set on foot designed to obviate all future difficulties from that source; and due presentation will be made of all measures necessary to guarantee the perpetuation of national interests.

Toward the close of last February our territory was entered by three police officers of the Territory of Arizona, who came over armed, and accompanied by two Pápago Indians, all in pursuit of American banditti. They were all disarmed in Janos and at once set at liberty, it being agreed that their arms should be placed at the disposition of the United States Government. On the other hand, a lamentable occurrence happened lately at Paso de Aguila. An officer, a sergeant, and two soldiers, belonging to the garrison at Piedras Negras, passed over to American territory in pursuit of a deserter. Opposition being made by the police at that place, some shots were exchanged, and with evil consequences upon both sides. Those who are adjudged guilty have been imprisoned, and the matter is being investi-

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gated by our military authorities, to the end that condign punishment be visited upon those who are proven to be responsible for that scandalous act, which so much resembled the late occurrence at Nogales, passed upon in a manner so justly severe by our military courts.

For the purpose of arranging, as best adapted to the interests of good vicinage, the pending claims of Mexicans against Guatemala, and of Guatemalan citizens against Mexico, a convention has been signed in the capital, which is to be submitted to the approval of the Senate, and which provides for the appointment of a mixed commission charged with the settlement of those claims. Another convention is to be also submitted to the Senate, providing for the reciprocal introduction, free of all duty, of the national products of both countries.

Our legation in Central America, after having visited the Republics of Salvador, Nicaragua, and Costa Rica, in which places it was received with marks of esteem very flattering to our country, returned to its place of fixed residence, Guatemala.

The executive, understanding the advantages which the Republic would obtain by the extension of its commercial relations with the Chinese and Japanese Empires, and in view of the favorable advances made by the latter lately, has instructed our minister at Washington to treat with the Representatives at that capital of the said Emperor, and negotiate a treaty of friendship, commerce, and navigation with each of them.

The treaty made with the Plenipotentiary of France on November 27, 1886, has been ratified by the French Government, and the exchange of ratifications will soon be effected in this city.

By invitation of the Belgian Government, the Mexican Minister, accredited to that kingdom, has been authorized as delegate to Mexico, to participate in the International Conference at Brussels, designed to secure the publication of the customs tariffs of the several nations composing the conference.

The executive continues to devote its efforts toward the maintenance of public peace and well-being and the preservation of the best harmony between all the general and local powers of the nation, elements indispensable to the country in the path of moral and material progress into which it has passed.

No difficulty has surrounded the elections in the States of Chiapas and Sonora, held in pursuance with the provisions of their respective constitutions. The decree issued by Congress forming two districts in the territory of lower California, to depend directly upon the federal executive, has commenced to become operative with great success in both cases, and principally to the northern district, which, as is known, acquires increasing importance daily.

The reappearance of cholera in Italy and in the Republic of Chili has forced the Government to redouble its vigilance and to continue to take all possible precautions to avert the invasion by that terrible plague of our

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territory. The executive is proceeding with the greatest care, and his efforts are happily seconded by the boards of health of the ports in all cases in which suspicious ships and cargo appear, when they prohibited communication with, or discharge from, the said vessel, save upon presentation of the circulars relative thereto, and always, when necessary, after due consultation with the superior board of health.

The proposed sanitary code is included. Its final adoption, however, has been postponed for the purpose of amending it in some points, in the light of new suggestions made by the president of the council, who, a few months since, went to Europe to study various matters appertaining to public hygiene. His investigations will doubtless give new life to the council and encourage its labors on the microbiological laboratory set up by the board.

In furtherance of the proposed improvements in the postal service, as far as circumstances would permit, 18 new post-offices have been established, also 50 agencies and 58 stations, which will bring together places hitherto of medium importance which have lain outside the circle of postal communication and shut off from all mail communication with the rest of the country.

Following up the plan adopted to establish daily communication between the capital of the Republic and the exchange offices abroad, situated on our frontier and maritime points, daily mails were put on during the past month to Acapulco, Tepic, and Colima, and very soon like service will be established between this capital and the port of Mazatlan.

The Central and International railroads having united at the hacienda called "Torreon," it became necessary to change the entire postal system in the States of Nuevo Leon and Coahuila. In due time orders were issued for the opening of postal agencies, offices and of mail cars, and the carrying of the correspondence between the respective stations and the towns situated beyond the lines was arranged for, so that as soon as the branch from Torreon to Piedras Negras was opened on the 1st of March last the postal service began to operate regularly under a new combination.

Foreseeing that, at no far distant day, the office at Nuevo Laredo would acquire decided importance, a building was purchased there and work begun to adapt the same to the needs of the postal service.

The measures heretofore adopted in this branch have produced favorable results, for mail movement has rapidly increased. In my message of September 16th last I stated that, according to the data up to that time collected, during the year closing in June more than 18,000,000 pieces had circulated through the Mexican postal service. It is now necessary to modify those data, and to state that the real total of pieces thus circulating during the year referred to approached 24,000,000.

The receipts have correspondingly increased, and it can be safely stated that by the close of the current year the receipts and expenditures of that important administrative branch will have been levelled up.

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It being considered opportune to introduce into our mail service the system of domestic postal drafts in connection with our mail communication with other countries, the due measures are being taken therefor.

The regulations for the execution of the convention of April 4, 1887, between Mexico and the United States were duly issued, and a notable increase has ensued in the traffic in packages of merchandise between the two countries, and it will be further extended by virtue of the treaty now under consideration for the increase of postal facilities. In view of this successful experience another treaty is being arranged between this Government and Great Britain.

The contract term for the service of the Pacific Mail steamers having expired by limitation, the concession was renewed, as was also that of the steamer *Campechano*, running between Vera Cruz, Progreso, and other intermediate ports.

A contract has been made with Mr. John C. Furman for the establishment of a line of steamers which will make at least monthly trips between New York and Progreso, touching at Vera Cruz. The said contract provides for the gratuitous carrying of the correspondence and other small advantages without any subvention whatever, while in exchange the line enjoys only the privileges and exemptions of ordinary mail steamers.

The Alexandre & Sons line of steamers for long years has discharged the postal service between Mexico, the United States, and Havana, receiving therefor a heavy subvention. Arrangements have now been completed with Mr. John Ritter, the agent of the company, to continue the said service without subvention.

In the exercise of the law of December 11, 1884, the executive has issued a decree whose leading provisions are the regulation of the payment of the tax on wheeled vehicles throughout the district municipalities, whose necessities increase daily, as well as the equitable scaling of municipal contributions.

Charity establishments are attended and improved as far as the state of funds sustaining the same will allow. These embrace the proceeds of the Lottery of Public Charity, which, under a contract made with the executive, is to be reorganized and its operations extended, so that not only will its contributions to the hospitals and asylums be increased, but the company engage to deliver shortly a large sum for the purpose of the improvement of all the charity establishments, and to aid in the construction of the district penitentiary, work on which proceeds with all possible celerity.

Work on the drainage of the valley, so justly the subject of public attention, has received fresh impetus. The board of management, in the exercise of the faculties it possesses under the regulations, has made a contract whereby this work will soon have its most important portion completed by the speedy construction of the tunnel which is to serve as an outlet for the water.

The National Monte de Piedad is recovering the credit it lost during the crisis which threatened its very existence. With the object of giving to that

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philanthropic institution all possible development, arrangements and combinations are being made, which will be promptly realized, and which will place at its service and in aid of its important operations the contingent of a large capital.

The decrees of December 29 and 30, 1887, have been promulgated, whereby vacancies have been declared filled in magistrates and judges of the federal district.

For the purpose of better serving the necessities of the public at Ensenada de Todos Santos, and under the provisions of the law of December 16, 1887, a district court was opened there, and has commenced its duties.

The law designed to do away with the difficulties attending the administration of justice in the Territories of Tepic and Lower California having been promulgated, the executive issued its corresponding regulations on the 21st of that same month.

The commission charged with framing the proposed code of federal procedure has continued its labors, and that part of the work relating to the organization and jurisdiction of the federal courts has been completed, for the purpose of facilitating its study.

The commission appointed to revise the code of commerce has its labors well advanced. The executive was desirous, in this connection, to meet one of the more immediate necessities of the case, as is, without doubt, the modification of the part referring to the matters of anonymous firms and of limited responsibility, and he has given especial attention to the proposals of the commission. In the use of the functions conveyed to him by congress in its decree of June 4th of last year, the new law providing for the regulation of the said societies will soon be issued, and will exercise due influence upon the mercantile and industrial interests of our Republic.

The curriculum of studies to be followed this year in the normal school and in the "Annex of Primary Instruction" has been recently issued. As the programme of the latter is to be employed in all other schools of its class, national and municipal, a great step has been taken in thus unifying instruction in all official schools.

In accordance with the new circular addressed to the governors of the States, recommending them to detail certain pupils to the normal school for the purpose of making uniform professorships throughout the entire Republic, the governors of Colima, Guerrero, Hidalgo, Morelos, Nuevo Leon, and Oaxaca have hastened to second the efforts of the executive in that connection, and it is expected that the other governors will not long delay like action, thus securing the ends sought, which will redound in transcendant good for the future.

For the greater financial convenience of the law college, various provisions have been ordered, which will, no doubt, result on the part of the teachers in greater application, and greater benefit on the part of the pupils.

The interests dependent upon the Department of Public Works have notably developed during the months which have transpired since the last

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session of Congress. Construction having been finished on the Mexican International Railroad, which unites the frontier town of Piedras Negras with the Central Railroad at the Hacienda of Torreon, that road was opened to traffic on the 1st of last March, thus starting a new line for the frontier of the North. The Central Railroad Company has continued construction on the several lines, from Tampico to San Luis Potosi, from Potosi to Aguascalientes, and from Irapuato to Guadalajara. A line of 180 kilometers having been finished on that branch, as far as Ocatlan, it was opened to traffic on the 19th ultimo. As the company is actively engaged in the construction of this road, it is expected that thereby, in a very short time, the important city of Guadalajara will become linked with the entire Republic.

As regards the National Company, it began reconstruction last October and November at both extremes of the line which is to unite Saltillo with San Miguel Allende. At last accounts there were 60 kilometers of track ironed on the branch from San Miguel Allende to the city of San Luis. The same company is actively engaged in raising the standard iron abutments of the bridge to cross the Rio Bravo, and which will probably be concluded by next May.

The companies who construct railroads with Mexican capital participate in the general impulse given to such enterprises, and with greater or less activity work of construction is proceeding on the respective roads, among which should be mentioned the interoceanic from Vera Cruz to Acapulco, which will soon open up new communication between this capital and Puebla, that of the Hidalgo Railroad, that of Marquez to Timapan, and those of the Yucatan companies, which are also somewhat advanced. It can be here added that the railroads constructed in the Republic now measure 6,800 kilometers. The telegraph web of the federation is being perfected alike in its survey, the construction of its lines and the service thereon. Various lines have been laid out, some of them with a second and even a third wire. The line is being stretched from Guadalupe y Calvo to Parral, which will open communication between the States of Chihuahua and Sinaloa, while the wire to connect Vera Cruz with Minatitlán has been begun, the same passing by Tlacotálpam and San Andrés Tuxtla.

On the 8th ultimo the cables purchased in England were laid between Jicalango and the city of Carmen, and between Puerto Real and Isla Aguado, thus placing in instantaneous communication the States of Yucatan and Campeche with the rest of the Republic. Two lines of the same cables were laid in the Grijalva and Coatzacoalcos Rivers, by all of which telegraphic communication has been established along the gulf coast. The extent of the land-lines laid from September up to the present reaches a total of 561 kilometers. Thirteen additional offices have been opened, while the 18,000 kilometers which constitute the Federal telegraph system (aside from the lines temporarily ceded to the several States) have been consolidated.

Since the middle of the last year the Government of the French Republic has invited that of Mexico to participate in the Universal Exposition to be held

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in Paris next May. The executive replied deferring his final decision until December of the same year in order to form an idea of the elements at the disposition of the States and other Federal entities. Having gained that end, and having ascertained the favorable opinion of the country touching the great International Exposition to which it had been invited, and also bearing in mind that all the Republics of America had already signified their intention to participate, the executive finally accepted the invitation in the name of this nation, and at once began the labors necessary to the exhibit of Mexico, which were entrusted to the Department of Public Works. The executive trusts that congress, convinced that the participation by the Republic in that exposition can not fail to result in advantage thereto, will approve the measure, voting the sum provided in the bill to cover the expenses thereof.

Mining industries have progressed remarkably. According to the data up to the present received in the Department of Public Works, during the past five months 859 denouncements of property have been registered, including 10 beneficiating works. The partial reports resultant from visits to the mines clearly set forth the progress attained in mining, while the new explorations made, and those under way, demonstrate that there is much yet to develope, not only in mines of silver, but also of iron, copper, gold and coal.

The law of June 6th last, authorizing the executive to negotiate contracts under certain conditions, and with certain guarantees, has produced excellent results. Under that law 36 contracts have been made for the development of mining properties in the States of Mexico, Puebla, Guerrero, Michoacan, Queretaro, San Luis Potosi, Durango, Coahuila, Sinaloa, Chihuahua and lower California, it being noticeable that these works were conducted on new or abandoned mining properties. The guarantees offered by the concessionaires give promise that the contracts will be carried out, for up to the present, they are complying with their obligations, while some of them have organized companies abroad and secured capital for their undertakings. As one of the obligations they assume is the deposit by them within a specified period of a certain sum, it is safe to suppose that with those contracts and the five approved by congress before the passage of the law all of like intent, the sum at least of $14,000,000 will be invested in mining operations.

The industry of agriculture has followed the ascendant course set by the industry of mining, it being noticeable that new cultivations such as those of the grape are the subject of peculiar attention on the part of private individuals who, following up the advantages given by the Government, are making direct importations of grape cuttings from abroad for the purpose of increasing their vineyards. The industries in silk and ramie fiber participate in this progressive movement. In connection with the progress of agriculture the acquisition of waste lands is proceeded with, as well as the perfection of several property titles, hitherto imperfect. Surveys of waste lands continue throughout various States of the Republic, which are developing tracts of

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more or less extent of said lands, part of which become the property of surveying companies, while the rest is reserved by the Government for sale and colonization. To the end that the Government portion may be unmistakably defined, engineering commissions have been appointed to operate in the States of Chihuahua, Durango, Sonora, Sinaloa and Puebla, in order to supervise the surveys made by the companies, and to take possession of the portion falling to the Government in its name. In addition to the lands surveyed by the companies, other lands have been denounced and acquired by private parties under the law of July 22, 1863, while many clouded titles have been cleared up, and the conflicting claims for excess or shortage by private parties. This has secured the possession of large tracts hitherto uncultivated and unknown, and thrown them open to cultivation and development, while it has also greatly contributed to raise the price of property, and to the development and advance of agricultural industries.

Upon the day designated by the constitution the budget of receipts and expenditures and the accounts for the closing fiscal year are submitted to you. As the laws governing our financial system have become more and more firmly consolidated, more satisfactory results are obtained alike in the collection of the taxes and in the accounting therefor.

It gratifies me to inform Congress that the public revenue during the last fiscal year, closing June 30 last, experienced a very perceptible increase, exceeding that from 1882 to 1883, which term yielded the best revenue of any year in our financial history. The net receipts amounted to $31,000,000, an increase of $3,000,000 over the preceding year.

This increase has allowed closer compliance not only with the service of the administration but has aided in the matter of public improvements and various other obligations that rested upon the public treasury, so that, at the close of the fiscal year, the liabilities were less than at any previous showing. It thus appears that while the last fiscal year showed an unprecedented amount for receipts, at the same time it accounted for unusually heavy payments.

Our system of accounting, closely related, as it is, to the budget, is being perfected every day; still experience, which is a true guide in matters of administration, is apt to reveal imperfections which it becomes necessary to correct. Thus it has transpired that at times payments have been made which have not been charged to any specific fund, and when three or four years later on they have been accounted for the present budget is forced to carry payments not effected now but effected long since. To meet this emergency, and to provide for the accounting of payments, and their consequent application to determined funds, the treasury has been instructed to open a special account therefor. I inform Congress of this proposed measure so that if it adjudges the same as expedient and adequate to the perfecting of the treasury's system of bookkeeping, it may be pleased to approve it.

The necessities of commerce, as indicated by the various currents of traffic, prevailed upon the Government to increase the plants of several

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maritime custom-houses, such as Vera Cruz, Progreso and Todos Santos, as well as others of minor importance, and to suppress the frontier custom-houses of Presidio del Norte, Quitovaquita, and the local tax office at Ensenada de Todos Santos. The Secretary of the Treasury will inform you in detail of these provisions to the end that if you consider them advisable they may be included in the budget of expenditures.

The principal edifices of the custom-house have been finished at Santiago Tlaltelolco, and the railroads having their termini in Mexico have been extended thereto. The final despatch of effects will hereafter be accomplished there, which will result in great advantage to the Government as well as to commerce, for thus the handling of goods will be expedited by being concentrated in one place. At the same time merchants have been given facilities compatible with the interests of the public treasury by being allowed long periods within which to warehouse their stores in the new customs buildings.

The executive, in pursuance of his purpose to extend further aid to commerce by freeing it from unnecessary restrictions, has been modifying the tariff now in force in the light of experience in the operations of the same. He has ordered that additions and corrections may be made in the manifests without penalty of fine, provided they refer to minor matters and not to important alterations. He further put on the free list several articles necessary to the development of industry, and increased the vocabulary of the regulations with a list of effects rated by analogy during the past months.

In questions of public credit the executive has not swerved from the course he adopted for the purpose of sustaining the good reputation of Mexico at home and abroad. Payment has been punctually made of the annual instalment of $300,000 to the United States, as well as the interest of the bonds issued to date in virtue of the law of June 22, 1885.

The operations for the examination and conversion of the claims chargeable to the nation are conducted regularly by the offices to which these delicate transactions are entrusted. This has produced a flattering result inasmuch as it has established our credit and rendered Mexican values firm, and even raised them to a quotation higher than any heretofore.

In virtue of the authorization conveyed by the law of December 13 last, to contract a loan abroad for the purpose of consolidating our financial system, negotiations were opened with some European bankers led by one of the principal houses in Berlin. The negotiations were conducted in strict accordance with the provisions set by Congress. The contract was lately signed, and as soon as the Government copy arrives account will be given to Congress concerning this important matter.

As several of the Yaqui and Mayo Indians, who still elude pursuit in the forests, and refuse to submit to the Government, have attempted various assaults upon defenseless farmers and upon unarmed travelers, it became necessary to push their pursuit and thus force them into their last hiding places.

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The troops charged with the pursuit and capture of the bandits in the States of Durango and Sinaloa were reinforced, and then proceeded to man all the mountain passes, and to extend their plan of operations. As was to be expected this resulted in securing the most complete safety of the localities thus overrun, the leader being killed, several of his associates being captured and the rest of the evil doers being completely dispersed.

Efforts have been continued for the perfecting of the regime of the army and of its departments. The military college, during the last scholastic year, has furnished eight graduating officers to the engineer corps and the special staff, as well as 25 to the artillery service and other arms.

Work is constantly pushed upon the repair and construction of military edifices. In the town of Margaritas, located upon our Guatemala frontier, barracks were opened on February 5, last, for 1,000 men.

The floating dock, "Pedro Sainz de Baranda," has been placed at the service of the public, and several vessels have already been repaired there.

In order to better the tactics of fixed-artillery companies assigned to some ports of the Republic, a battalion has been organized, to be styled "coast and garrison artillery," and which is to be relegated to that sole service. A museum of artillery is being compiled in the national arsenal. The arm factory not only suffices now for the manufacture of the arms in use and their respective munitions, but also for the construction of a great part of the new armament of all kinds needed by the army, even in the possible contingency of being placed upon a war footing. The aforesaid factory has constructed a gun, in imitation of the Remington rifle, calibre of 9 milimeters, with its respective cartridge and ball coated with steel, and very satisfactory results have been reached in experiments made as to weight and initial power.

In the national foundry new iron foundries have been started, while foundries for the working of brass, copper, zinc, and other materials are to be mounted.

Finally new apparatus for ballasting and for all kinds of assaying have been brought from abroad, as well as instruments indispensable to the efficient working of the factories of artillery and to studies in army technique.

COLOMBIAN RAILROADS.

The information, obtainable only from government archives at the capital of the nation—so distant and so unapproachable except with a "golden key"—has rendered it necessary to rely on my own observations and the engineers in charge of construction and management. I enclose a plan of the railroad system, presuming it may lead to a better understanding of the present report. The railroad system of the interior of Colombia is as yet in its embryonic stage, and slow in growth.

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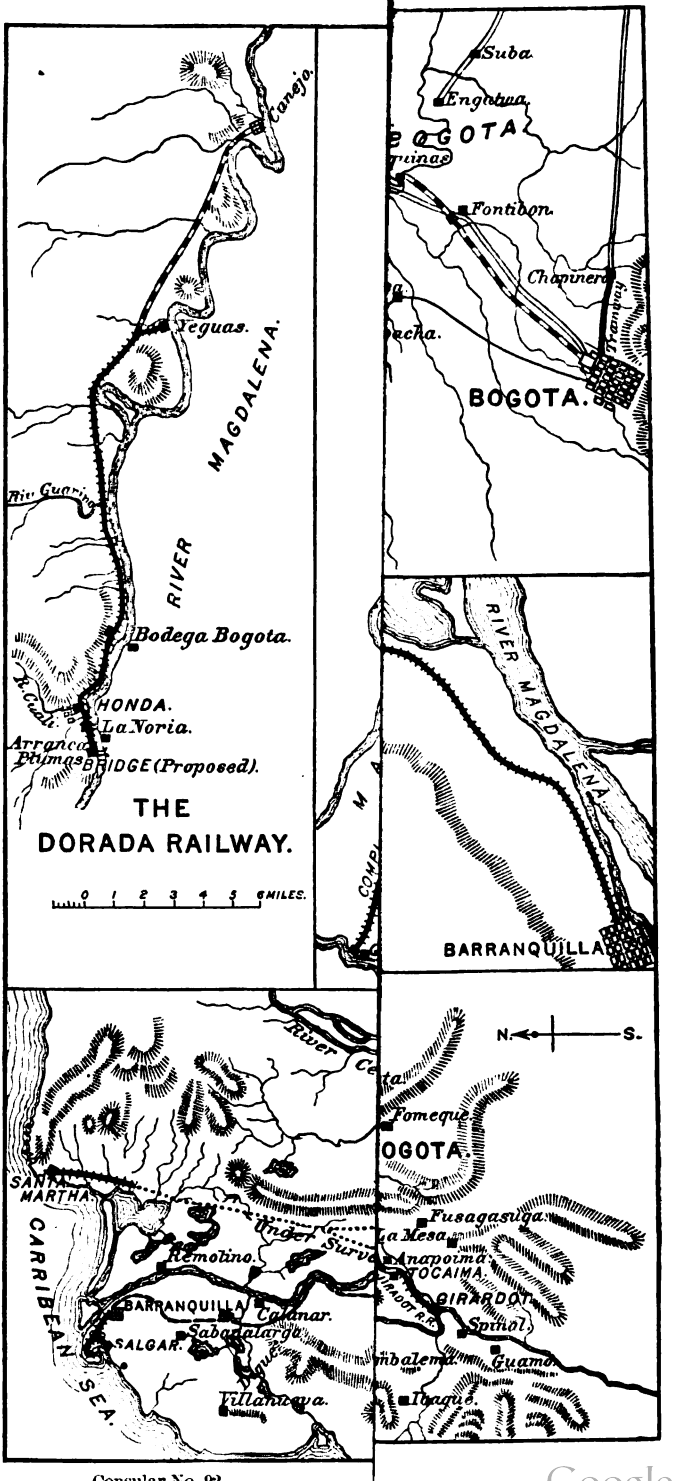

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The capital that might have built railroads and brought remunerative order out of a chaotic realm of natural wealth has been mainly spent in fostering and suppressing political revolutions.

The internal resources of Colombia in precious metals, coal, iron, copper, gums, dyewoods, medicinal plants, fibers and valuable timber should rank her among the most prosperous in the family of republics.

The only road in this consular district in actual service is the "Bolivar," between Barranquilla and Salgar, the port for shipment. A branch road to Puerto Colombia, not yet completed, will terminate at the pier now building where steamers can discharge and receive freight in the future. The railroads to be considered are the Bolivar, Cauca, Jirardot, the Antioquia and the Dorado. I name the Bolivar first as being the first in importance in its service and aid to foreign commerce, as well as in its perfect management.

A slight digression here may obviate a more prolonged explanation later. The mouth or delta of the Magdalena river, the great commercial artery for eight states of the Republic, is obstructed more or less at all seasons by a shifting bar formed by the sediment of the Magdalena, the Cauca and their hundreds of tributaries. It is and has been a "marine cemetery," so to speak, for the past forty or fifty years. Vessels enter the river sometimes with from eighteen to twenty feet of water on the bar, but a few days later, when cleared for departure, there may be but nine or ten. Loaded vessels outward bound have waited sixty or seventy days watching for the favorable combination, which seldom occurs, of a fair wind, good depth of water on the bar, a moderate sea and a reliable pilot to get safely out of this aquatic trap. And it is not an exaggeration to say that one-quarter part of the sailing craft has been lost in exit or entrance. Vessels have been lost on the bar when in tow of a powerful tugboat and piloted by one of the best experts on the coast. During the past month an American schooner, the F. G. French, of New Haven, could not get out on account of the heavy sea on the bar, the prevailing northerly wind and uncertainty of the eccentric channel, which may or may not be as it was upon the entrance. A British barkentine has been nearly two months in the same dilemma; and on the 26th ultimo the German brig Enrique was lost with a valuable cargo, and two of her officer were drowned in endeavoring to reach the proper entrance to this delta of the Magdalena—a river 800 miles in navigable length, exclusive of its tributaries, one of the great rivers of the world, but without a light-house, a beacon, or even a buoy to mark its entrance—with no landmarks, no pilots, and a channel as shifting and unstable as the sands that bar the entrance. It was to obviate this peril to life and property that the Bolivar railroad was constructed.

When the branch to Puerto Colombia is completed steamships can lie alongside a pier in smooth water, in a port easy of access, to discharge and receive freight. Sixteen thousand three hundred and seventy-one tons of exports from the interior have been passed over this road for shipment during the year 1887, and 11,848 tons of imports have been delivered at the Barranquilla terminus for the interior trade.

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The exports are from the marginal towns and villages along the rivers accessible by river steamers, and only a fractional part of what might be sent to the coast for foreign markets reaches commercial channels through a lack of proper roads and the scarcity of labor. Seven steamship lines touch at Salgar to discharge and receive freight, mails and passengers. German line from Hamburg twice a month; Royal Mail twice a month, to and from Southampton; West India and Pacific, English, twice a month from Liverpool; Atlas, English, from New York, twice a month; Harrison, English, Liverpool and New Orleans, twice a month; General Transatlantic, French, twice a month, and the Spanish line twice a month. The passenger traffic over the Bolivar road from and to the Salgar terminus has more than doubled during the past three years.

Should the Dardo and the Antioquia roads be pushed to completion there would be four trains or more daily to Salgar instead of only two as at present. But of these roads we will speake in the proper routine.

The Bolivar is under American management; is owned by private parties. The rolling-stock now in service, of English manufacture, will be replaced as the necessity arises with American. The extension of the branch road to Puerto Colombia, on the northwest side of Salgar bay, makes the distance from the Barranquilla terminus to the pier eighteen miles. The Salgar terminus will probably be abandoned in the immediate future.

Barranquilla to Salgar wharf is fourteen miles, and the necessity for steamtugs and lighters between Salgar and the shipping will soon be abolished, and probably lower rates of freight will be established to the pier at Puerto Colombia.

The rate for passengers at present is $5 per capita for first-class from Barranquilla to the shipping, or vice-versa; $3 for second-class, and freight at the rate of $2.50 per ton.

The Cauca Railroad.—This road, the construction of which was commenced in 1878, was to connect with Cali and the west bank of the Cauca river, has its present terminus at Cardova, 12 miles from Buenaventura. It is now government property; has been surveyed to Cali, but the work has been suspended.

At the time the contract was made the national government ceded to the grantee 500,000 acres of wild land on both sides of the line in alternate lots of 10,000 hectares each. During the construction of the road, and for five years after its completion, all the material for construction and operation—tools, food, medicine, etc., were to be free of duty, tax or impost. The state governments of Cauca and Antioquia were joint shareholders, the national government agreeing to contribute $3,000,000, one half of the estimated cost of the road. An exclusive franchise for forty years was guaranteed by the national government. The passenger tariff for the 70 miles—Buenaventura to Cali—was to be $5 for first class, $3 for second class, and one cent a pound for freight. For way traffic a differential tariff would be established within the specified limits.

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An integral and important part of the contract was the construction of a pier at the port of Buenaventura to accommodate loaded trains and ships drawing twenty feet of water. As far as can be learned from unofficial sources, failure in payment of promised subsidies and revolutionary troubles have prevented the continuance of the work. The grantee on the one part and the government on the other made an amicable adjustment, and the line as far as completed (12 miles) became the property of the government of Cauca and the nation, and its future is a matter of vague uncertainty.

The Jirardot Railroad.— By reference to the accompanying plan it will be seen that this line has been completed to Portillo, 12 miles. The line has been surveyed to Bogota, a distance of about 80 miles. It is a government enterprise, and presents engineering difficulties of no ordinary character. The work is progressing slowly, but owing to the topographical features of the route six per cent. gradients will be necessary at several points on the line of survey; and it is considered doubtful whether the road when completed will ever pay its running expenses. Passengers coming up the river en route for Bogota prefer to leave the river steamer at Yegnas, taking the Dorado railroad to Honda; then they cross the river and proceed by the old mule road, consecrated by a century of usage. Comfortable hotels, in picturesque locations, break the journey into easy stages, and whether for business or pleasure the majority of travelers who have had a surfeit of river travel between Barranquilla and Yegnas do not care to spend two or three days more on a small steamer on the upper Magdalena for the doubtful pleasure of skirting mountain spurs and crossing ravines on trestle work among the Cordilleras. Remarks on the future progress and prospects of this line would be premature, its history is a subject for the future.

The Antioquia Railroad.— From Puerto Berrio to Medellin, 125 miles, has been completed to Pavis, 30 miles from Puerto Berrio. The first contract for this road was signed in February, 1874, modified on the 4th of May following, and in July, 1876, a new contract was made for the termination of the line at Barbosa, a distance of 100 miles from Puerto Berrio. This also is a road of heavy gradients. The State of Antioquia was to contribute at the rate of $17,700 per mile, but not to exceed a total of $2,000,000, upon which basis state bonds were issued. The state of Antioquia, as shareholders of one-third part of the enterprise, owned the right to one-third of its proceeds. The grant was for the period of fifty-five years, with exclusive privilege for thirty years, beginning from the first day of March, 1883. The same immunities and privileges in regard to duties and taxes, as specified for the Cauca road, were also conceded for the Antioquia. The maximum rates of fare and freight were, for first class passengers 12 cents per mile; second class, 8 cents; third class, 4 cents. Imports, 30 cents per ton per mile; exports, 25 cents; and coffee and tobacco, 15 cents a mile.

With this brief summary of the principal features of the grant it may not be amiss to mention some of the difficulties,

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There are to be 22 bridges, 115 trestles, 58 culverts, 4,135,288 cubic yards of earthwork, and 177,242 cubic yards of retaining walls. The central Cordillera, to be passed at its greatest depression, 5,177 feet above sea level, "requires the adoption of six per cent. gradient." But in spite of the difficulties to be overcome—the original design of the projector, the grand project of joining the Magdalena valley to the Pacific coast by the union of the Cauca and the Antioquia roads would open up a realm of wealth. There are 580 mines of gold or silver constantly worked, a large number without machinery within those mountain barriers, only accessible by bridle paths, rendering the transportation of proper tools and machinery impossible. On some of the interior rivers marble in inexhaustible quantities could be quarried, especially on the Claro and Nare.

Coal belts have been discovered, alum, sodium, calcium, manganese, cobalt, lead, zinc, mercury, arsenic, and platinum have been reported upon; agates, jaspers and variegated marbles are found in the mountains. The population of the more mountainous regions of Columbia are the bone and sinew of the nation—hardy, persevering, and industrious—good herdsmen, agriculturists, or foresters in times of peace, and brave and reliable soldiers in war.

Sugar, cotton, corn, rice, wheat, tobacco, cocoa, coffee, aniseed are some of the productions awaiting an outlet from the valleys and table lands of the interior to navigable waters. The space to which this report should be limited prevents a more detailed description of domestic and forest products intended to be reached by the Antioquia Railroad.

The Dorado Railroad.—It is necessary to refer to the Magdalena River, especially to that portion of the river between Honda and Yegnas, unnavigable when the water is low on account of the rocks, shoals, and rapids in that section of the river.

In 1872 the State of Tolima granted on exclusive privilege for constructing a railroad between the waters of the lower Magdalena, at Caracoli, and the upper Magdalena, at Honda, and a bridge across the river at Honda. A series of rapids and falls at this place forms a barrier between the upper and lower rivers.

The National Government guaranteed, for twenty-five years, 7 per cent. interest on the sum of £42,000 sterling—the estimated cost of the work. The preliminary surveys elicited adverse reports. That the capital so guaranteed was insufficient for the purpose, and that such a short line would be expensive in working, especially in competition with the time-honored mule train, that would still absorb a good portion of the traffic on the 3 miles of road. Navigation being difficult and dangerous for at least 30 miles below Honda, application was made for and a new concession granted with exclusive privileges. English capital could not be found for the original plan, as the cost was estimated at £16,600 sterling per mile. Taken by itself this seemed excessive, but in conjunction with 27 miles, on which the cost would be exceptionally low, the average cost did not seem

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so great. The projected plan for the extra concession was to connect a port below 'El Dorado with Honda, and the bridge to cross the river at that place—about 30 miles along that part of the river most obstructed by shoals and rapids. The road has been completed to Yegnas, about 18 miles. Owing to revolutionary disturbances, additional time was granted (to August, 1885) to extend the road to Conejo.

The National Government grants a subsidy of $5,833 per mile, as completed, and an exclusive privilege for eighty years, at which period it is to become the property of the Nation. Seven per cent. annual interest is allowed for any delay in the payment of the promised subsidy. The road between Caracoli, below Honda, and La Noria, above Honda, has been in service since June 1, 1882, effectually uniting passenger and freight traffic between the waters of the lower and the upper Magdalena. This, the most difficult part of the road, cost $64,000, and the engineers have estimated the remainder of the road at a cost of $16,000 per mile.

The bridge across the river at Honda will probably be built in the future, but as yet nothing has been done towards its construction. Some five years ago a Colombian railroad enterprise was inaugurated to construct a railroad from Puerto Wilches, on the eastern bank of the Magdalena Rver, to follow the valley of the Sogomosa River and reach Bueurmauga. The line was surveyed and a short section of track, less than a mile, was laid.

Both the State and the National Government contributed aid to the project. Presumably the revolution of 1884–'85 caused its suspension. Rumors of a new contract are current, but no official data has come to hand in regard to its prospects. Before closing this report mention should be made of a projected railroad scheme to connect Santa Marta with one of the up-river ports. There are 20 miles of road completed from Santa Marta to the Cienega station, and the line is being surveyed, it is reported, to Banco. As a large section of the line south of the Cienegas is on alluvial lands subject to overflow, and the main portion is through swamp jungle and across various lagoons and water-courses of promising difficulties; it would be premature to express any positive opinion as to its future. There are said to be copper mines in course of development within reach of the line that may be largely remunerative in the future, but it is doubtful whether profits derived solely from such a source would be able to cover the interest on sufficient capital to build such a road—through a district very sparsely populated—and in competition with the steamboat lines.—BARRANQUILLA, *March 10, 1888.*

S. M. WHELPLEY,
Vice-Consnl.

TRADE WITH SHERBROOKE.

New mines are being opened, particularly copper, lime, and asbestos. Old works are being enlarged, a better class of machinery is being put in place with all of the modern appliances for carrying on the business, and, as might be expected, the annual production is increased, and as the United States is the great market place for the surplus output for all of these in-

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dustries, the natural result is a yearly increase in Canadian exports to the States, although there is no great increase in manufacturing industries.

The principal exports from this port to the United States during the past year, dutiable and non-dutiable, as herein indicated, are as follows: One thousand eight hundred and sixty-one tons crude asbestos, free, valued at $133,020; 8,993 cords of hemlock bark, free, value, $43,725; 5,527 tons bituminous coal, dutiable, value, $26,189; raw hides, free, value, $30,058; 4,009,560 pounds wood pulp, dutiable, value, $74,938; 21,753 lambs, dutiable, value, $32,357; 112,445 bushels of lime, dutiable, value, $19,394; 1,682 tons railroad iron, dutiable, valuation, $35,513; telegraph poles, railroad ties, and other free lumber, value, $36,403; dutiable lumber of all kinds, valued at $286,387. Of the total value of declared exports, $283,387 are free of duty; $563,072 are dutiable, yielding an income to the treasury, approximating $150,000; and $65,537 in value were goods of American production imported into Canada and returned to the United States for one cause and another, duty free. The principal exports to the United States from this port are products of the soil, mines, the forests, and live stock.

It may also be observed that there are scarcely any manufactured articles shipped to the United States from this place with the exception of lumber, principally spruce, which is manufactured only to the extent as it comes from the saw in its rough conditions, including clapboards, lath, and shingles, also lime, which is sold by the bushel, the bushel being the unit quantity. About 35 per cent. of all the lime produced in this district finds a market in the United States, principally in Maine, New Hampshire, and Massachusetts, in which cases it is used almost exclusively by paper manufacturers on account of its great superiority in color, purity, and strength.

Wood pulp is manufactured quite extensively here, upwards of 2,000 tons having been exported to the United States from this district during the past year, nearly the whole production finding a ready market among the New England paper manufacturers. At present capital is finding a safe and remunerative investment, and there never appears to be a demand for such investments but what ready capital can always be secured.

There seems at all times to be a supply of both artisan and day labor, equal to the demand, at such prices as capital may establish from time to time, which may be said as a rule to range a little lower than is paid in the United States for the same service. Apparently labor and capital are on reasonably friendly terms, and no immediate danger of a conflict between workmen and manufacturers is apprehended, although it is quite evident that at no distant day the same complication in the labor question that is making the whole economic industry of the United States insecure and uncertain at the present time will present itself here, in fact it is already felt, but not to such an extent as to seriously demoralize capital and derange business.—SHERBROOKE, P. Q., *March 3, 1888.*

D. M. WHITE,
Consul.

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Consul-General Greathouse transmits the following table, showing the total values of commodities exported to and imported from the following named countries from and into Japan during the years 1885, 1886, and 1887:

Countries.	Exports from Japan.			Imports into Japna.		
	1885.	1886.	1887.	1885.	1886.	1887.
	Yen.	*Yen.*	*Yen.*	*Yen.*	*Yen.*	*Yen.*
United States	15,613,869	19,988,217	21,529,269	2,726,185	3,358,987	3,283,098
Great Britain	2,411,979	4,195,336	3,478,729	12,415,422	12,703,249	18,970,544
East India and Siam	492,084	649,143	459,389	3,396,965	3,561,319	5,422,609
France	6,735,912	9,632,703	6,528,397	1,329,866	1,330,914	2,313,346
Germany	463,933	864,459	921,763	1,665,653	2,313.659	4,010,919
China	7,655,769	9,594,907	10,510,033	5,763,650	7,123,851	7,985,821
All other countries	2,778,757	2,416,736	3,663,702	2,048,239	1,776,453	2,327,917
Total	36,152,003	47,341,721	50,091,242	29,345,380	32,168,432	44,304,251

FREE IMPORTS INTO CANADA.

The proclamation issued on April 4 by the Canadian Government is superceded by the following:

Now know ye that by and with the advice of our privy council for Canada we do hereby cancel, annul, and supercede our said hereinbefore in part recited Letters Patent, and under and by virtue of the powers vested in us by the said act, and by and with such advice as aforesaid, we do, by these presents, proclaim and declare that the following articles, that is to say:

Green fruits and edible berries, in their natural condition, viz: Apples, apricots, bananas, cherries, olives, peaches, pineapples, plantains, plums, pomegranates, quinces and shaddocks. Blackberries, cranberries, gooseberries, raspberries and strawberries.

Seeds, viz: Clover, grass and flower, canary, chia, cotton, jute, mustard, (brown and white) sesame, sugar beet, sugar cane seed, and seeds of fruit and forest trees not edible. Seeds aromatic, which are not edible and are in a crude state, and not advanced in value or condition by refining or grinding or by any other process of manufacture (in addition to those already on the free list) viz: Anise-star, caraway, cummin seed and tonquin beans.

Trees, shrubs and plants, viz: Apple, cherry, peach, pear, plum, quince and all other fruit trees and the seeding stock of the same. Blackberry, currant, gooseberry, raspberry and rose bushes. Shade, lawn and ornamental trees shrubs and plants.

Vegetables, viz: Citrons, mangoes, melons and yams may hereafter until otherwise provided be imported into Canada free of duty. And we do further by and with the like advice, proclaim and declare that these our letters patent shall have and take effect from and after the fourth day of April instant.

TRAMWAYS IN VIENNA.

All of the tramways of Vienna are upon the surface of the streets. As yet I have heard of no project for high or elevated or subterranean tramways. As regards the return made by the tramway company for the use of the streets of Vienna, I am informed by the mayor of the city that under the original contract entered into between the company and the city, under date of March 7, 1868, the company was bound to pay 5 per cent. of its gross receipts. Subsequently an agreement was entered into fixing a sum in gross to be paid by the tramway company, which sum amounted in the

year 1886, to 125,000 florins. In April, 1887, the original contract was again amended, and the compensation to be paid to the city for the use of the streets by the tramway company was fixed at the annual sum of 2,220 florins per kilometer,* with the proviso, however, that the compensation was in no event to be less than 125,000 florins per annum.

I beg leave to enclose herewith a copy of the original contract of March, 1868, and a copy of the contract of April, 1887, amending the original contract in many important particulars.

The main provisions of these contracts cover the following points:

The plans of the construction of the tramways to be subject to the approval of the common council, the council reserving the right to order any changes it may deem expedient.

All lines of tramways to have double tracks, with a space of at least 11 feet between the tracks and between track and sidewalk. In narrow streets, a single track, with switches.

The quality of the material of which the tramway is built is prescribed by the contract. No tramway can be opened to the public until its construction is approved by the competent municipal authorities.

Right of way to cross established tramways to be granted to new lines.

The tramway company is held to clean, keep in order, etc., 8 feet of street for each track. The models for tramway cars to be submitted for the approval of the common council.

The company to employ a sufficient number of guards for the safety of the public and for the operation of the road. The instructions for these guards, as well as for the conductors and drivers, to be approved by the common council. The contract prescribes the fare and time-table, limits velocity, number of passengers for each car, etc., etc.

The company is held to great care to avoid collisions with wagons, etc., passing upon the streets, and is made liable for all damages arising from such collisions. (The doctrine of contributory negligence seems to have been disregarded.)

New inventions and improvements in tramways to be adopted at request of common council. The franchise of the Tramway Company to present holders is not transferable without the consent of the common council, and is limited to thirty-five years.

For each seat of cars in use the company pays in advance 1 florin annually into the pauper fund.

The company is not entitled to claim damages for interference with its traffic by means of movements of troops, public feasts, etc.

At the termination of the franchise the municipality may elect to either take possession of the tramway or to cause its removal, and the restoring of the respective streets to their original condition at the cost of the tramway company.

In the first case, the company must deliver the tracks to the city in good condition and without any compensation whatever. The stables, depots,

*One kilometer is equal to about .62 English miles.

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etc., are to be transferred at their appraised value; but the municipality is not entitled to claim nor bound to accept the transfer of the means of transportation (transportmittel cars.)

The company is obliged to deposit as security for the proper observance of the conditions of the contract the sum of 300,000 florins in city securities. In case the company fails to fulfil any of the conditions of the contract, the common council reserves the right to declare any portion of the indemnity found forfeited in its own motive, and without any interference on the part of the judicial tribunals or administrative authorities. — VIENNA, *April 7, 1888.*

EDMUND JUSSEN,
Consul-General.

THE SUGAR-BEET INDUSTRY IN GERMANY.

To raise the price of sugar beet in Germany, which had sunk so low that the producers could scarcely realize any profit whatever in raising beets, the cultivation in the year 1885 was limited in as great a degree as possible. However, in 1886 the cultivation was again increased, when it was conjectured that the stagnation in the sugar market would soon be relieved; and besides it was a settled conviction that the cultivation of beet root as compared with other crops offered a more certain and profitable return. Large transactions in "futures" were entered into at high prices, which likewise stimulated and contributed to the increased cultivation. The crop of 1886 was a middling one, but it is generally acknowledged that the beets never before yielded so much sugar. The seed was sown in April, in warm, dry weather, and the cool and rather moist temperature of May materially aided the growth, and the hot spell from July up to September was most favorable towards the formation of sugar producing elements in the beets. Thus the crops were gathered in an excellent condition — a condition which was due in the first place to the very favorable season, and secondly to a careful selection of the seed and the manures.

The beets were sold mostly by their bulk weight, and only in exceptional cases were the prices regulated according to the percentage of sugar. Prices varied from 1.30 to 2.50 marks (generally 1.50 to 1.80 marks) per 100 kilograms, being a slight advance on the prices which obtained in the previous campaign.

The improvements made in the campaign year 1886–'87 in the technical working in the manufacture of beet sugar were mainly in the direction of simplifying the separation and purifying processes, as also in the saving of material and work. Especially the treatment of the juice with sulphuric acid found great use, and improved methods of filtration were more frequently adopted, while the use of bone coal has been almost given up. In the campaign year 1886–'87, 137 factories (against 162 in the preceding campaign) prepared from molasses sugar, of which 55 worked with the *osmose* process.

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But in consequence of the low price of sugar and the proportionate high cost of molasses this process has not found use by a number of the factories supplied with the required apparatus, on account of its not being sufficiently remunerative. In 1885–'86, 78 factories worked with the osmose process, 79 in 1884–'85, 115 in 1883–'84, 124 in 1882–'83, and 135 in 1881–'82; by the *elutions* process of making sugar from molasses, 46 factories were occupied in 1886–'87, 51 in 1884–'85, 46 in 1883–'84, 50 in 1882–83, and 44 in 1881–'82; by the *substitution* process, 10 in 1886–'87, 10 in 1885–'86 and 1884–'85, 13 in 1883–'84, 8 in 1882–'83, and 4 in 1881–'82; by the *precipitation* process, 2 in 1886–'87, 4 in 1885–'86, 5 in 1884–'85, 4 in 1883–'84, 6 in 1882–'83, and 4 in 1881–'82; by the *elimination* process, 17 in 1886–'87, 16 in 1885–'86, 13 in 1884–'85, and 2 in 1882–'83; by the *strontium* process, 4 in 1886–'87.

According to an estimate the following quantities of molasses were worked by the different processes by the above mentioned factories during the campaign year 1886–'87:

	Kilograms.
By the osmose process	470,962
By the elution process	850,811
By the substitution process	116,766
By the separation process	323,065
By the strontium process	64,428
Other processes	9,098
Total	1,837,130

The following table shows the number of factories in the German Empire, the different methods employed for extracting the juice, and the quantity of beets worked during the campaign years 1871–'72 to 1886–'87 inclusive:

Campaign years.	Number of factories.	Number extracting juice by diffusion.	Number extracting by press process.	Number extracting by other processes.	Beets worked.
					Tons.
1871–'72	311	52	216	43	225,091
1872–'73	324	63	220	41	318,155
1873–'74	337	80	214	43	352,876
1874–'75	333	113	181	39	275,674
1875–'76	332	157	137	38	416,128
1876–'77	328	197	98	33	355,003
1877–'78	329	224	81	24	409,096
1878–'79	324	258	50	16	462,874
1879–'80	328	291	28	9	480,586
1880–'81	333	309	20	4	632,220
1881–'82	343	324	16	3	627,194
1882–'83	358	343	12	3	874,715
1883–'84	376	368	6	2	891,813
1884–'85	408	402	4	2	1,040,268
1885–'86	399	395	3	1	707,031
1886–'87	401	397	3	1	830,167

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The production, imports, and exports of raw sugar for the campaign years 1871–'72 to 1886–'87 inclusive were as follows:

Campaign years.	Production	Imports of refined and raw sugar, No. 19 and upwards.	Imports of raw sugar below No. 19.	Exports of raw sugar.
	Tons.	*Tons.*	*Tons.*	*Tons.*
1871–'72	18,644	1,273	3,158	566
1872–'73	26,255	1,248	975	817
1873–'74	29,101	1,614	841	1,180
1874–'75	25,641	1,410	891	288
1875–'76	35,804	1,452	245	4,589
1876–'77	28,942	770	101	4,621
1877–'78	37,800	491	116	7,120
1878–'79	42,625	390	153	10,347
1879–'80	40,941	298	167	9,516
1880–'81	55,592	226	126	22,144
1881–'82	59,972	220	150	25,393
1882–'83	83,199	210	237	39,070
1883–'84	94,010	155	187	49,117
1884–'85	112,303	126	206	55,379
1885–'86	80,810	123	262	40,407
1886–'87	98,562	146	156	48,968

SELECTION OF THE SEED.

Taking the varieties in the same order as below given the following are the results of the experiments:

Varieties.	Density, Brix.	Per cent. of sugar.	Quotient of purity.	Product per morgen.
East Prussian	18.8	16.86	89.35	161.64
Knauer's Mangold II	19.1	16.82	87.78	171.72
Dippe's Sugar Richest	18.8	16.57	88.16	154.08
Knauer's Mangold I	18.4	16.40	89.00	212.94
Knauer's Improved Imperial (white)	18.7	16.38	87.63	186 84
Dippe's Improved Imperial	18.5	16.24	87.63	184.13
Knauer's Improved Imerial (rose)	18.2	15.95	87.51	176.58
Kl. Wanzleben Original	17.8	15.47	86,90	195.12
Knauer's Electoral	17.2	14.99	87.75	220.68
Aumühle	17.2	14.94	87.02	238.32
Mährisch	17.2	14.89	86.86	235.08
Koenigsberg	17.2	14.88	86.48	252.72
Knauer's Imperial	17.3	14.78	85.56	247.26
Factory Seed	17.1	14.78	86.73	267.12
Knauer's	16.9	14,74	86.94	225.00
Heuckes	16.6	14.18	85.07	267.89

Grossman reports the following results of a series of experiments carried out in 1886 with different kinds of beets:

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There were sixteen different kinds of beets selected for the experiments, namely: East Prussian, Knauer's Mangold II, Dippe's Sugar Richest, Knauer's Mangold I, Knauer's Improved Imperial (white), Dippe's Improved Imperial, Knauer's Improved Imperial (rose), Kl. Wanzleben Original, Knauer's Electoral, Aumühle, Mährisch, Koenigsberg, Knauer's Imperial, Factory Seed, Knauer's, Heucke's Seed.

In latter years great care and attention have been given in Germany to the selection of the best beet seed. Professor Maercker, director of the agricultural experiment station at Halle, Province of Saxony, conducted in recent years a series of experiments with a variety of seed. The seed selected consisted of 26 different sorts, which were divided among 21 different experts for experiments. The following are the results obtained:

Denomination of seed.	100 pounds beets per German morgen.*	Per cent. of sugar in beets.	Per cent. of sugar in the juice.	Quotient of purity.	100 pounds sugar per German morgen.
A. Sugar beet. Vilmorin race.					
Gebr. Dippe's improved best white quality	148.8	16.28	17.86	86.2	24.24
Vilmorin blanche améliorée, original	157.7	15.59	17.05	85.5	24.19
Grosshoff (Quedlinburg), Vilmorin, second raising	177.0	14.89	16.04	84.7	26.29
Schläper (Rossla), Barbarossa, second raising	144.5	15.93	17.39	85.8	23.12
Schreiber & Son (Heringen), Vilmorin	141.4	15.39	16.91	85.1	21.83
Schlitte & Co. (Aumühle), Vilmorin, second raising	147.2	16.45	17.77	87.6	24.30
Hornung & Co. (Frankenhausen), Vilmorin, second raising	152.8	15.93	17.47	86.7	24.56
Sugar manufactory, Körbisdorf, Vilmorin, second raising	163.9	16.06	17.39	85.6	26.29
B. Sugar beet. Kl. Wanzleben race.					
Kl. Wanzleben, original, old raising	201.6	14.74	16.00	85.8	29.78
Kl. Wanzleben, original, new raising	189.4	15.38	16.39	86.6	29.10
Dippe's improved Kl. Wanzleben, best	183.4	16.16	17.51	87.3	29.55
Grosshoff (Quedlinburg), Kl. Wanzleben	179.0	14.29	15.36	84.2	25.55
Braune (Biendorf) improved, Kl. Wanzleben	201.5	14.75	15.84	85.9	29.57
Schreiber & Son (Heringen), Kl. Wenzleben	205.3	14.89	15.96	86.0	30.86
Schlitte & Co. (Aumühle), improved Kl. Wanzleben	184.9	15.71	17.00	86.4	29.08
Wilke (Gr. Möhringen), Altmärker, Kl. Wanzleben	209.5	14.34	16.05	84.4	30.09
Hornung & Co. (Frankenhausen), Kl. Wanzleben	166.2	15.40	16.93	86.7	25.82
Rabbethge (Einbeck), Kl. Wanzleben	183.1	15.21	16.17	85.5	27.72
Weinschenk (Lulkau), Kl. Waneleben	196.2	14.84	15.76	86.2	29.32
C. Vilmorin and Kl. Wanzleben. Cross.					
Braune (Biendorf), Vilmorin and Kl. Wanzleben, cross	197.9	15.28	16.35	86.1	30.06
Strandes (Zehringen), Vilmorin and Kl. Wanzleben, cross	164.4	14.79	16.07	84.9	24.55
Bibrans (Uefingen), Vilmorin and Kl. Wanzleben, cross	174.4	13.81	14.92	83.5	24.01
D. Various.					
Vilmorin collet rose, original	204.0	13.74	14.60	84.4	28.03
Gebr. Mette (Quedlinburg)	198.1	14.98	16.30	86.9	29.66
Gebr. Mette (Quedlinburg), improved white imperial	185.0	14.62	15.78	84.7	27.02
Strandes (Zehringen), improved smooth leaf	193.3	14.29	15.44	83.6	27.79

The field on which the experiments were made, being a good second-class humus beet soil, with a loamy and marly subsoil, had been manured in the early part of spring with factory compost, rich in lime. A few days previ-

* Morgen equal to .63 of an acre.

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ous to the planting the soil had been supplied with 100 pounds each of Chili saltpeter and nitrogenous phosphatic meal to the acre.

The question of manuring the soil is one that requires the greatest attention in the cultivation of the sugar beet. Careless and injudicious use of manures is more or less detrimental to the quality of the beet. In order to determine upon the quality and quantity of manures to be used it is necessary to possess a general knowledge of the physical character and chemical composition of the soil and the beets. The prejudice against the use of certain kinds of manures—such, for example, as saltpeter—seems to be unjust. But its abuse is detrimental, and therefore great care should be exercised in employing it. With reference to the question whether the percentage of sugar in the beets is determined by saltpeter manuring, the eminent Professor Wagner, of Darmstadt, makes the following observations:

If it has been formerly observed that by strong saltpeter manuring, notwithstanding that the same had been done in conjunction with phosphoric acid manuring, the amount of sugar in the beets showed a decrease of from ½ to 1 per cent. or more, with a considerable reduction in the quotient of purity, the latest experiences furnish the satisfactory result that beet cultivators have succeeded in establishing more uniformity in the percentage of sugar in the various kinds of beets, which is not at all, or only very slightly, diminished by manuring with 200 pounds of Chili saltpeter per morgen. A great number of experiments have proved that by strong saltpeter manuring a considerable increase in the crops of beet was obtained without showing any important reduction either in the percentage of sugar or quotient of purity in the juice. But to obtain such favorable results the chief conditions to be observed are the following:

1. Cultivate excellent sugar-rich varieties of beets.
2. Procure the seed from the best and most reliable quarter.
3. Use with Chili saltpeter a sufficient quantity of phosphoric acid, in order that the ripening of the beets is not retarded.
4. Apply the saltpeter before the sowing of the seed, and do not use it as a top dressing.

The following results were obtained from a series of manurial experiments carried out under the supervision of the agricultural society on the light and dark beet soils of the province of Posen, which show the average increase per 100 pounds of beets in the crop:

	Average increase.
200 pounds superphosphate	7.8
200 pounds superphosphate and 100 pounds Chili saltpeter	27.3
200 pounds superphosphate and 200 pounds Chili saltpeter	37.6
100 pounds superphosphate and 200 pounds Chili saltpeter	28.0
200 pounds Chili saltpeter	17.2
200 pounds ammoniated superphosphate	5.3

A mere glance at the above figures will serve to illustrate the rapid growth of the beet-sugar industry in Germany during the last fifteen years. In the campaign year of 1871–'72 the production of raw sugar was only 18,644 tons, while in that of 1884–'85 it reached the enormous amount of 112,303 tons, showing an increase in twelve years of about 500 per cent.

COLOGNE, *March 17, 1888.* WM. D. WAMER,
Consul.

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PRODUCTION OF GOLD IN GUIANA.

For many years a difference has existed between the Netherland Government and the French Government in relation to the ownership of certain gold mining territory at Surinam. The difference appears to be founded upon the following circumstances:

Since 1816 the river Marowyne has been recognized by the Dutch and French authorities as the boundary line between Dutch and French Guiana. It appears that at some distance from the sea coast the Marowyne divides into two branches, and that in 1861, owing to disputes arising as to which of the two branches constituted the principal river or boundary line, a commission was appointed by the French and Netherland governments to examine and dispose of the question. In the month of November, 1861, the commission decided the question in a sense favorable to the claims of the Dutch Government. Notwithstanding this decision, until the present time no convention has been concluded between the two countries looking to the confirmation of the work of the commission; consequently the question still remains an open one.

So long as the disputed territory was scarcely populated and regarded as a sterile tract the question of ownership was of inconsiderable importance. Recently, however, the situation changed, owing to the reported discovery of large quantities of gold within the disputed territory.

Great numbers of gold searchers from French Guiana have, it is alleged, recently settled within the disputed territory, and caused no little dissension among the Dutch explorers, who now insist that the Netherland Government shall take energetic measures with a view to arriving at a definite solution of the disputed boundary question.

It is quite probable that this question will be the subject of an interpellation to the Government at the opening of the new chambers, which will probably occur next month.

I enclose a statement showing the value of the gold exported from Surinam during the years 1876–'86 inclusive. These figures have been submitted to the Minister of the Colonies and pronounced correct.

	Florins.		Florins.
1876	49,900	1882	784,726
1877	293,380	1883	903,943
1878	407,059	1884	1,305,698
1879	679,914	1885	1,331,774
1880	918,672	1886	1,032,767
1881	849,435		
Total			8,557,268

In 1884 there was exported 967,271 grammes, representing a value of 1,305,698 florins. Of this quantity there was exported to—

	Grammes.		Grammes.
The Netherlands	379,833	France	76,435
England	312,757	Cayenne	43,403
United States	153,257	Other countries	1,584
Caracas	2		

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In 1885 there was found in Surinam 667,087 grammes; in Saramaca, 56,207 grammes; and in Marowyne, 22,603 grammes, a total of 745,897 grammes. This quantity, valued at 1.36¼ florins per gramme, represented a value of 1,016,284.66 florins.

In 1885 there was exported 983,039 grammes, representing a value of 1,331,774 florins. The exportations were to the following countries:

	Grammes.		Grammes.
The Netherlands	665,502	Cayenne	1,478
England	126,283	Demerara	306
United States	152,702	Other countries	13,319
France	23,449		

In 1886 the quantity found was 711,514½ grammes, of which the average value was 1.37 florins, and the total value 974,774.86½ florins. Of this quantity there was found in Surinam 640,832 grammes; in Saramaca, 38,178 grammes, and in Marowyne, 32,504½ grammes.

There was exported in 1886 753,845 grammes, representing a value of 1,032,767.65. The exportations were as follows:

	Grammes.		Grammes.
The Netherlands	585,296	Demerara	16,000
England	107,629	France	15,490
United States	25,197	Other countries	4,233

During the first three months of the year 1887 there was found in Surinam 125,067 grammes; in Saramaca, 13,776 grammes; and in Marowyne, 7,243 grammes.

There is no data at hand to show the production for any period later than the first quarter of the year 1887.—THE HAGUE, *March 29, 1888.*

ISAAC BELL, JR.

AMERICAN STOVES AND HARDWARE.

The kitchen arrangements in Spain for cooking are of the most primitive character, and I have no doubt that Adam must have cooked with exactly the same "hornillo" that are used at the present time in Andalusia, which I will try to explain, viz: In all Spanish kitchens there is built at one side or end a formation of brick and mortar, in the top of which are inserted a series of round holes about 9 or 12 inches in diameter, with an opening below each, made upon the same principle as a brick-kiln, in which only charcoal is used as fuel, the fire being made to burn by fanning in front of the lower opening, causing a current of air to flow through, as a draught to the fire. On my arrival in Spain it was almost impossible to realize that, in this age of progress, no improvements had been introduced beyond what everyone used here.

When I mentioned to my friends that I was thinking of ordering an American cooking stove, I was told that I would be unable to hire a cook who would be willing to remain in service where it was used, besides, none would use stove coal, which was necessary, as it caused headaches and other

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injurious effects which Malaga cooks would not "put up" with; however, in October, 1886, I ordered one with a full set of stove furniture, and had it shipped via Gibraltar for Malaga. Unfortunately, on its arrival here, having been badly packed, it was broken in many places. I, however, found an Englishman here who, being a good workman, by making some thin iron bands, succeeded in riveting the broken pieces together, and it was made serviceable for a time, the cost for repairing being almost as much as the original price of the stove. I then wrote to New York, claiming that the breakage had occurred through bad packing, and asking the firm to replace the broken plates, this they refused to do, but under compromise furnished the necessary pieces at cost price for cast iron, and in due season the box arrived in Malaga, but the freight and charges on same equaled those originally charged upon the stove itself.

I will now relate my experience in the use of this stove, at first my cook looked with perfect disdain upon the new comer and made every objection to its use, but it was not more than a month before it was the wonder and envy of all the cooks in Malaga, when it became necessary to clean the chimney, stove, and pipe; we ordered our cook not to light the stove the following morning but to use the "hornillos," to this the woman protested, saying she could not now use anything but the "Estua Americano," even in the heat of the past summer nothing could induce our Spanish cook to give up, even for a day, the use of this American stove.

In the course of time the fame of this stove was the subject of conversation with all the friends and acquaintances of our "Cocinera," and in October last two other families here ordered one of these stoves, each from the same firm that shipped mine. I sent the order myself, reminding them of the disastrous plight in which mine arrived, instructing them to spare no pains or expense in packing; when they were received in Malaga they were in a much worse condition than mine was, being all broken to pieces. They had been paid for and there was no redress. The stoves are almost worthless, and the parties who made the purchase feel that it is a "forlorn hope" to attempt to have them delivered in good condition at Malaga. Two or three other families here have expressed a desire to buy and use these stoves, and have been waiting to see the condition in which the last two ordered should arrive, with the results as stated above they now decline to order.

Instead of packing them as these were, put together complete for transportation, they ought to be packed each part separately, viz: One box containing say 6 top plates; 1 box containing say 6 bottom plates; 2 boxes containing say 6 side plates each; 2 boxes containing say 6 end plates each; 1 box containing lids and other parts. All well packed with plenty of straw or hay to keep them from breaking, and the stoves ought to be put together here. No single box with contents ought to be so heavy but that three or four men could readily handle it, for when boxes are of an unusual weight, when carrying them, instead of letting them down easily the men simply "let go" and drop them, and when they contain light castings such as stoves they are sure to break.

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Again, the greatest drawback in the introduction of American manufacturers is the fact, as in stoves, a plate being broken by any accident the stove becomes worthless because there is no way to replace the broken part here. The same trouble exists in bringing, for instance, American petroleum lamps, the wicks, chimneys, and other portions being of a peculiar shape or make, can not be replaced as they wear out or break, and necessasily the article becomes worthless. I know one firm here who supplied these houses, offices, warehouses, etc., with American lamps four years ago, with a barrel full of extra chimneys, the same having all been broken, the lamps are thrown aside, for none can be purchased here; it is too far to send to the United States for chimneys.

American houses may send illustrated circulars, but Spaniards want to see the article itself. An agent can readily be selected in almost any location who will receive consignments and who, with a full supply of everything where every part can be replaced in case of necessity, could introduce any good American cooking stove, but they must draw and have ovens that will bake well I know of no better opportunity than this part of Spain where this class of stoves could be disposed of to advantage, and the firm who first introduces any particular make of stoves will control in the future the business here, for once satisfied the Spaniard never likes to change.

There is here also a splendid opportunity for the introduction of all kinds of American hardware, for our manufactures beat the world, especially in the finish of the article. English-made goods unnecessarily contain more than double the quantity of metal, are heavy, cumbersome, and uncouth in appearance, while ours have all the required strength for durability, with the additional "finish," which English make does not possess. There is not an American hatchet for sale in Malaga, and yet nothing that will take its place.—MALAGA, SPAIN, *February 17, 1888.*

H. C. MARSTON,
Consul.

TOBACCO MANUFACTURE IN ALGERIA.

If I am correctly informed a bill which will certainly, if adopted, contribute to extend the commercial relations between the United States and Algeria, is about to be introduced into the French Legislature.

The object of this bill is the protection of the local tobacco manufacturing industry by the establishment of a new duty on manufactured tobacco imports.

Algeria itself is, as the following table will show, quite a large tobacco producing country.

Years.	Hectares.	Kilograms.
1881-'82	8,663	5,499,054
1882-'83	8,694	5,227,738
1883-'84	7,957	4,923,742
1884-'85	8,333	4,654,612
1885-'86	10,999	5,631,945

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Part of this tobacco is bought by the French Government, part is exported, and the remainder is used by the local industry. Tobacco growing and manufacturing are in the colony entirely free, subject to no government control nor internal revenue taxation. This tobacco is not as a rule of the finest brand, requiring the addition of a certain proportion of foreign tobacco to improve the flavor. In spite of all the advantages it may enjoy the local industry can not compete with the German and Swiss manufactories for the following reasons:

1. In Germany and Switzerland the price of labor is much lower than in Algeria. In Germany, for instance, the fabrication of 1,000 cigars costs from $1.00 to $1.20, while in Algeria it costs from $2.45 to $2.60.

2. Leaf tobacco is introduced into Germany in bond with temporary admission. If duty has been paid, the manufacturer enjoys not only the benefit of drawback on his product exported, but he is allowed a bonification of 8 per cent. for waste. The Algerian manufacturer is obliged to pay a duty of 23.80 francs per hundred kilograms. Thus to put in market 1,000 cigars costs the Algerian manufacturer from $1.90 to $2.00 more than his German or Swiss competitor, and when we consider that about 40,000,000 cigars are annually imported from these last mentioned countries it will be seen to what a disadvantage the colonist is placed when compared with his rivals. To obviate this state of inferority the bill proposes the following duties:

1. On cigars and cigarettes 150 francs or $30

2. Snuff and chewing tobacco 100 francs or $20 per hundred kilograms.

But you notice, sir, that these duties only apply to manufactured tobacco, those on leaf tobacco remaining as before 13.80 francs per 100 kilograms. Under the conditions thus created the importation of manufactured tobacco from Germany and Switzerland will be checked, and the Algerian manufacturers will have to supply the market and make good for the difference. Thus, notwithstanding the considerable quantities of tobacco now imported in order to raise the quality of the native plant, a large proportion of that which is now introduced into Germany and thence exported as cigars into this country will become the object of direct transactions between foreign tobacco growing countries and this colony. American dealers would thence, I think, do well to give their immediate attention to this matter. Open commercial relations with this and the other important places of Algeria, and secure the market before their competitors come into the field. —ALGIERS, *March 20, 1888.*

CHAS. E. GRELLET,
Consul.

CAMPHOR MONOPOLY IN FORMOSA.

[THE FOREIGN OFFICE TO MR. DENBY.]

Your Excellency: Upon the 25th January, ultimo, the Prince and ministers had the honor to receive a communication from your excellency in the matter of the camphor trade in Formosa, in which you requested that the rules agreed upon in the eighth year of Tung Chix (1869) governing the trade in this article still be continued in force, and that it shall not be

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carried on as a Government monopoly. In regard to this case the Yamên has sent repeated communications to the governor of Formosa, in which the question at issue has been discussed. During the summer of 1887 the Yamên received a report from the governor of Formosa, as follows: "Shui Ti Liao is over 300 li from the capital of Formosa, and conterminous with the borders of the districts inhabited by the aborigines. The passes issued by the customs authorities clearly stipulate that foreign merchants in purchasing camphor must not proceed to places in close proximity to the country occupied by the aborigines and their trade, to the end that trouble may be avoided. In the present case of the German merchant, Tui Hsing (hants and Haesloop), proceeding to the said place to trade—this was a violation of the stipulations of treaty set forth in the customs passes. In a word, Formosa camphor is not produced in the outer mountainous region inhabited by the Chinese. Since the tenth year of Kuangtsii no exportation of camphor has been made, and as evidence of this fact there is the customs return, which can be examined. The provincial monopoly in camphor is in that produced in the inner mountainous region inhabited by the aborigines, which has been brought under subjection by the governor. The provincial government has, at its own expense, established military stations there as a means of protecting this business. It will thus be seen that the present condition of affairs is not the same as formerly. Foreign merchants are still permitted to purchase camphor, if procurable, near the sea ports, the same as the German firm, Tui Hsing, who have also made purchases at Lu Chiang, a place settled and free from disturbances. But to places conterminous to the region settled by the aborigines foreign merchants should not proceed, in due observance of the conditions specified in the customs passes.

"As to Shui Ti Liao, this is a place where the aborigines appear and disappear. A feud exists between the Chinese and aborigines there; they kill each other, and there are repeated cases of murder. There can be no harm by the foreign mininsters at Peking instructing their respective consular officers, in conjunction with the local authorities, to proceed to said place for the purpose of ascertaining whether or not it is conterminous to the boundaries of the aboriginal region. Whether or not Chinese as well as foreign merchants formerly bought camphor there it is not convenient to accept the one-sided statements of foreign merchants and there alone as authentic. The present system of conducting the camphor trade in Formosa is not in violation of the treaty and agreement."

The Yamên would observe that from the above report, at places near the seaports, camphor, if procurable there, can still be purchased by foreign merchants without regard to whether it is official or not, but in the inner mountainous regions, settled by aborigines, recently brought under subjection by the governor of Formosa, as the trade has been opened at the expense of the Government, makes it another matter, and the action taken by the Formosa authorities can not be regarded as a violation of treaty or of the agreement in their placing the trade in question under official control. Disturbances easily arise in the districts settled by the aborigines, and in not wishing foreigners to proceed far into the interior is purely from a desire of complete friendliness. The action taken in the premises is in accordance with the treaties.

The Prince and ministers believe that your excellency will with a spirit of impartiality look into the matter and regard the statements made in this communication as being in order.—PEKING, *February 16, 1888.*

OLEOMARGARINE.

It is reported to me that the trade in this article has resulted very satisfactorily during the year 1887. The imports of it, especially from the United States, have been much larger than in former years, as will be shown hereinafter. It is also stated in print;

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That the figures representing the imports and the stock on hand towards the end of the year justify the conclusion that the manufacture of artificial butter was greater than in previous years, and thus that the consumption of this properly and highly valued substitute for natural butter has considerably increased.

It is further stated:

That all measures devised and taken in certain quarters to suppress the article or rather entirely to annihilate its existence, have only served to make it better known, more popular, and to enlarge the consumption of the same. The law in Germany, relating to artificial butter, for instance, it is claimed has had no other effect than the extension of existing "butter factories," and that others are about to be established in that country. It is probable, and to be wished, that the new law concerning butterine in England, and which came into force on the 1st of January, 1888, will have a similar result.

The quotations clearly show what is felt or thought upon the subject of all laws anywhere, and which are intended or calculated to curtail the production of a substitute for natural butter, and its sale and consumption by interested parties in this country. The year's (1887) trade began with very little stock on hand and a considerable demand, so that the first or earliest imports were eagerly looked for, still the holders of them on account of the then rather low ruling butter prices could not realize above 65 to 67 florins per 100 kilograms, prime American brands. As somewhat later on imports increased and demands slackened, prices about middle of February came down a few florins; but imports continuing to pour in so largely increased the stock as to cause prices in April to recede even to 52 and 53 florins for prime goods. Afterwards changes in the prices occurred but unimportant until in June a quite noticeable improvement in the demand again brought them up to 59 and 60 florins; but in August butter manufacturers and speculators making large purchases, operations based upon the poor condition of the grass crop, prices advanced to as much as 70 and 72 florins, even as high as 79 florins was paid for the mark "Harrison" in one instance. Thereupon followed a reaction, prices fell and closed in December at about 64 to 65 florins. I see it remarked that full and satisfactory reasons for the rise and fall in prices for "oil" can in most cases not be stated, as that is influenced by too many factors.

According to a statement published by a firm in Rotterdam, which is prominently identified with and entirely competent to furnish authentic information regarding the trade in the article in question, the imports of American margarine were in 1887, as follows:

111,000 tierces about 17,800,000 kilograms at Rotterdam. 66,600 tierces about 10,000,000 kilograms at Amsterdam. Total 184,600 tierces about 27-, 800,000 kilograms, against a total of imports at Rotterdam and Amsterdam of 121,480 tierces or about 18,300,000 kilograms in 1886, and 121,287 tierces or about 18,280,000 kilograms in 1885.

The entire stock on hand on the 31st of December, 1887, is reported to have consisted of only about 4,200 tierces or 630,000 kilograms.

European Margarine.—The principal production of this article on the continent of Europe is located in Austria, Hungary, France and Russia. These countries participate more or less extensively every year in supplying

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the wants of the butterine, or artificial butter manufacturers in Holland. The great bulk of the "European oil," which is imported into this country, does not get into the hands of the regular trade, but is shipped directly to different butterine manufacturers. It is claimed to be chiefly on this account that no statistics showing the quantities imported during any given period can be procured. However, a commission merchant, one very largely engaged in the trade in "American oils," and who is well informed on all operations in the article, reports to me as follows:

The imports of European margarine into Holland in 1887 were also very large, and that it is safe to assume that they amounted in the aggregate to nearly, if not fully, an equal quantity imported during the same period from the United States. He made to me the further interesting statement:

That the manufacturers of artificial butter in Holland never in any one year turned out so large a product as in 1887; that it is estimated to have amounted in value to about 75,000,000 of florins, and that the artificial butter making industry is now, so far as value of product is concerned, one of the largest if not the most important manufacturing interest of the Netherlands.

BACON AND LARD.

The imports of and trade in American bacon and lard in Holland, which up to four or five years ago were of rather considerable importance, have since from year to year so greatly declined as to be now or for the year 1887 looked upon, I regret to say, as no longer deserving the notice of those engaged in wholesale operations in those articles. For illustration I would mention that a few days ago I was told by a dealer in hog products of this city that he imported from the United States in 1880 nearly 3,500 cases of bacon, only 900 cases in 1886, and in 1887 hardly 300 cases. There remain only such imports as from time to time take place in small lots by retailers.

The chief if not the sole cause of this market being now almost closed against the American hog product consists hereof that for a number of years last past the farmers of this country have gone and are from year to year more and more going into the pursuit of hog raising, which it said they can now manage to make tolerably renumerative on account of the low prices ruling for rye and other swine fattening substances.

This in turn has reduced prices for pork and hog products generally to such a degree as to almost entirely exclude for the present at least competition from the United States. From Holland there are now a days, as I am informed, regular and large shipments made of slaughtered hogs and other hog products to England and to Germany, or at least to Hamburg. — AMSTERDAM, *January 21, 1888.*

D. ECKSTEIN,
Consul.

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POST-OFFICE TELEGRAPH SERVICE IN GREAT BRITAIN.

The following is a statement showing the gross amount received and the gross amount expended in respect of the telegraph service in Great Britain from the date of the transfer of the telegraphs to the state to the 31st March, 1887:

	Amounts received by post-office in respect of telegrams, private wire rentals, etc.	Amounts received for old materials.	Amounts received for waste paper, etc.	Value of services performed without remuneration.	Total receipts.	Total expenditures.	Balance to meet interest on stock, and redemption of debt.	Balance of expenditure over receipts.	Total.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Year ended 31st December 1870 ...	609,734 19 1	.....	1,100 0 0	1,466 11 1	612,301 10 2	350,376 4 6½	261,925 5 7½	.....	612,301 10 2
" " " " 1871 ...	732,365 11 2	.....	1,250 0 0	1,774 8 11	735,390 0 1	496,694 16 3	238,695 3 10	.....	735,380 0 1
" " " " 1872 ...	970,083 6 9	.....	1,409 0 0	1,839 19 4	973,332 6 1	833,908 4 3½	139,424 1 9½	.....	973,332 6 1
" " " " 1873 ...	1,045,543 19 4½	.....	1,268 0 0	2,350 8 7	1,049,162 7 11½	956,170 0 6½	92,992 7 4½	.....	1,049,162 7 11½
" " " " 1874 ...	1,160,538 0 1	2 5 1	1,350 0 0	5,854 15 8	1,167,745 0 10	1,081,937 2 5½	85,807 18 4½	.....	1,167,745 0 10
Quarter ended 31st March, 1875 (a).	242,505 7 ⅛	8 9 11	326 0 0	3,518 19 6	1,533,982 5 11½	323,797 8 1½	103,272 4 2	.....	1,533,982 5 11½
Year ended 31st March, 1876 (a) ...	1,276,662 8 8	14 19 3	1,252 0 0	9,694 1 7		1,106,912 13 8½		.....	
" " " " 1877	1,323,106 17 6½	27 9 10	1,335 0 0	13,845 15 3	1,328,315 2 7½	1,208,401 17 4½	119,913 5 2½	.....	1,328,315 2 7½
" " " " 1878	1,333,542 8 2½	21 6 7	1,688 0 0	17,417 3 8	1,352,668 18 5½	1,227,560 12 8½	125,108 5 9	.....	1,352,668 18 5½
" " " " 1879	1,346,892 6 10	142 18 10	1,830 0 0	20,602 13 11	1,369,467 19 7	1,161,551 3 3½	207,916 16 3½	.....	1,369,467 19 7
" " " " 1880	1,452,489 3 6	507 1 1	1,417 0 0	15,382 1 11	1,469,795 6 6	1,173,287 6 4	296,508 0 2	.....	1,469,795 6 6
" " " " 1881	1,610,908 5 1½	692 13 3	2,807 0 0	19,478 16 5	1,633,886 14 9½	1,308,453 19 3½	325,432 15 6½	.....	1,633,886 14 9½
" " " " 1882	1,630,443 0 8	67 2 8	1,960 0 0	21,920 10 2	1,654,390 13 6	1,440,498 6 10½	213,892 6 7½	.....	1,654,390 13 6
" " " " 1883	1,740,063 16 3½	40 17 7	1,878 6 3	26,087 10 0	1,768,070 10 1½	1,583,876 18 ½	184,193 12 1½	.....	1,768,070 10 1½
" " " " 1884	1,760,898 12 11½	32 0 2	2,517 15 0	25,775 2 5	1,789,223 10 6½	1,808,920 12 ½	.....	19,697 1 6	1,808,980 12 ½
" " " " 1885	1,755,118 14 9½	69 7 0	2,128 15 10	27,097 8 2	1,784,414 5 9½	1,820,764 6 9	.....	36,350 0 11½	1,820,764 6 9
" " " " 1886	1,758,169 10 9½	350 2 11	1,748 0 0	26,997 0 0	1,787,264 13 8½	1,832,401 16 10½	.....	45,137 3 2½	1,832,401 16 10½
" " " " 1887	1,855,686 1 5	78 15 5	2,188 0 0	29,206 17 10	1,887,159 14 8	2,032,632 8 10½	.....	145,472 14 2½	2,032,632 8 10½
Total	23,594,752 10 3½	2,055 9 7	29,452 17 1	270,310 4 5	23,896,571 1 4½	21,748,145 18 4½	2,395,082 2 11	246,656 19 10½	24,143,228 1 3½

(a) By the fourth section of the act 39 Vict., chap. 5, the period for which the parliamentary account of the receipts and expenditures of the telegraph service is to be rendered was altered from the year to 31st December, to the year to 31st March.

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STATE OF COAHUILA.

ITS SITUATION, LIMITS AND PHYSICAL ASPECT.

According to the general statistics of the Republic of Mexico, the State of Coahuila is located in longitude west of Mexico between 0° 37′ and 4° 4′, and in north latitude between 24° 31′ and 29° 55′. Its territorial extent is estimated at 131,800 square kilometers, or an area of 11,000 square leagues as claimed by the local authorities.

The northwestern portion of the State called "El Desierto," was formerly inhabited by savage tribes of Indians, who made frequent incursions on the villages bordering on this section, so that it has not only remained unsettled but comparatively unknown, until within the past few years. It has recently been thoroughly surveyed, and an authentic map will eventually be published.

The State is bounded on the north by the United States of America, from which it is separated by the Rio Grande ("Rio Bravo del Norte"). It is bounded on the east by the States of Tamaulipas and Nuevo Leon; on the South by San Luis Potosi and Zacatecas; and on the West by Durango and Chihuahua. Its population is estimated at one hundred and fifty thousand inhabitants.

In the central and southwestern portions are extensive prairies and fertile valleys, adapted to profitable cultivation and stock raising. The "Laguna" district especially, is a section of the most prodigal exuberance, and one of the richest agricultural portions in the State, and even of the Mexican Republic. Its alluvial soil, composed of clay and sand, with an admixture of calcareous substances, renders it of easy cultivation and preserves a sufficient degree of nutritious moisture for the prompt germination of seeds and a rapid growth of the plant. From a bushel of corn three hundred bushels may be easily grown, and one bushel of wheat will produce a hundred; while cotton, which is the chief industry in this portion of the State, gives a net profit of from 75 to 150 per cent. according to its proximity to the "Rio Nazas." With the exception of the plantations of "Hornos" which were formerly the property of the Jesuits of the "Colegio de Parras," this extensive tract of land, at one time, belonged in most part to the Marquisate of Aguayo.

For the sum of two hundred and fifty dollars twelve and a half cents, ($250.12½) the Royalty of Spain granted to the Marquis of Aguayo and "Santa Olaya" 115¼ "sitios" of sheep grazing lands and 28 "sitios" of cattle pasture, (in all about 246,287 acres), of which D. Juan de Ortosum took possession in the name of the Marquis Don Francisco de Urdiñola, Sr., styled also Captain of Mazapil and conqueror of this portion of Mexico.

The surveys which were made in April, 1731, by D. Prudencio de Basterra, mayor of Parras, began in the Valley known as "Espiritu Santo," and terminated 200 chains beyond the ancient bed of the "Rio Nazas," touching the foot of the Fortress of Mapimi.

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The northwestern portion of the State of Coahuila may be classified, topographically, under four principal heads, viz: Mountains, table lands, hills and plains, which will be treated separately.

MOUNTAINS.

There are six distinct chains of mountains that bound or traverse the northern territories of the State; they are the "Serranias del Carmen," "Serranias de la Catedral," "Cerros de San Geronimo," "Serranias del Nevado," "Sierra del Consuelo," and "Sierra del Bravo"; the last mentioned five ranges bearing local or state names.

Las Serranias del Carmen.—This range forms the southern limit of this country from the peak of the "Centinela" to the "Boquillas," a distance of 35,320 meters, or eight and a half leagues. It lies nearly in an eastern and western direction. It is the highest range in this section of the State, and has several blades or small ranges extending in a northerly direction, between which are fertile valleys covered with grass and well supplied with water by numerous springs and ponds. Especially notable are the table lands near the "Centinela," known as the Garden (Jardin), for their exuberant vegetation. The mountains are covered with grass to their summits, where groves of pine, cedar and oak are found. Fibrous plants—lechuguilla and zotol—are found in abundance.

Its area is about twenty "sitios mayores" (86,700 acres). It is well adapted to the raising of small stock.

Serranias de la Catedral.—This range is situated about four leagues from the preceding. Its highest peak is known as the "Pico Etéreo." It is composed of a collection of high precipitous and rocky peaks, short irregular ranges of hills, without vegetation of any kind except near the foot of the mountains. The valleys and pasture lands formed by these ranges abound in water and grass, and in consequence of their accessibility, and the protection against inclement weather afforded by the surrounding hills, they are adapted to stock raising of all kinds. Its area is about three sitios, or thirteen thousand acres.

Cerros de San Geronimo.—Situated two leagues from the last mentioned range. It is a long low chain of mountains extending from northwest to southeast, covered with grass and zotol to their summits. It contains fine grazing lands, but lacks the amount of water necessary for a large number of stock, as it has no permanent streams and but few water holes of small capacity. Artificial supplies could however be easily provided with but little cost. Its area is about sixteen thousand three hundred and fifty acres.

Serranias del Nevado.—In some of the Government maps this range is called "*Serranias del Burro,*" though in this State the preference is given to the former, it being the name of its highest peak which is situated in the center of the range. It extends in a northwesterly direction to the "Rio Grande." It is composed of irregular chains of mountains, and varies in width from 5 to 10 leagues. Its various branches have also distinct names, of which mention will be made in detail: "Las Flores" are high cordilleras,

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noted for their rounded summits. They are traversed by deep gullies, which uniting, form large streams and water holes in the valleys below. These mountains are covered with dense forests of pines, *piñones* and cedar, which are also seen extensively in the valleys. The valleys abound in grass and are dotted over with springs of water. The three most valuable peaks of this sub-range are the "Cerro de los Arboles," "Cerro de Huashua," and the "Cerros de las Labores." This latter is so called on account of the Indians in early times having dammed up the water in this vicinity and used it for irrigating the small farms which they cultivated.

Water is found high up in the mountains in great abundance, and here grow in vast quantities the famous "maguey" plant. Its area is about 7 "sitios mayores" 30,345 acres. "Las Cierras del Cibolo" extend irregularly from the "Puerto de Riesgo" to the Rio Grande. Forest trees, fibrous plants and grass are abundant throughout this range, and stock of all kinds find abundance of grazing and water. The springs are comparatively few, but the water is found in "tinajas" water holes, of which the most notable are the "Agua Nueva," "Monos," "La Palma" and the famous "Tinaja Bonita," anciently called by the Indians "La Tinaja Colorado" on account of the red sand-stone which forms its sides and bottom. Long deep valleys divide and traverse these ranges, one of which called the "Puerto del Cibolo" passing through a rift in the mountains of the same name, forms a natural road from the most southern extent as far north as the Rio Grande, and forming a junction with another from the village of Muzquiz to Bavia and Piedra Blanca (White Rock), at the last named village. Its area is 73 sitios 316,450 acres. The total area of the "Serranias del Nevado" range is about 80 "sitios" or 346,800 acres.

Sierra del Consuelo.—This range lies north of the "Sierranias del Cibolo" (Buffalo Range). It is a narrow low chain of mountains covered with grass fibrous plants, and easily accessible to herds.

The valleys, whose streams run easterly to the Rio Grande, are abundant in pasture lands and conveniently accessible water holes. In this section "zotol" is notably abundant and of large growth. Its area is 5 "sitios" or 20,675 acres.

Sierra del Bravo.—This range lies west of the Cibolo chain, from which it is separated by a narrow gateway and extends westwardly. The valleys or gullies formed by this range are wide and deep, with high perpendicular walls or palisades running nearly parallel with the Rio Grande, and forming the rockiest portion of the State. It abounds, however, in water, grass and zotol (the latter a species of palm much used for brooms and floor matting), and has an area of about 17,340 acres.

There are isolated chains of mountains in this region, the principal ones known as the "Cerro del Burro," "Cerro del Colorado," and the "Loma del Mosquito." They are in general well supplied with pasture and water, and covered with groves of oak, pine and cedar.

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HIGH PLAINS OR TABLE LANDS.

From that broken and mountainous tract of country extending from the highest peak of the "Burro" range to the river, including the before-mentioned ranges, known as "Flores" and "Cibolo," is an extension of some 151,725 acres of high plains or table lands. It is cut up by deep ravines which, commencing in narrow gullies, widen out into fertile valleys.

This extension of plains is covered with grass and spotted with abundant water holes. The second portion of this division is located between "Bravo," "Rio Grande" and the "Cibolo" ranges, and comprises an area of about 86,700 acres. It is much broken by deep precipitous gullies, abundant in immense quantities of grass and plenty of water in all parts. The entire area of these plains being about fifty-five "sitios," or 238,425 acres.

HILLS.

Included under this are three grand portions of hilly country—the first in the neighborhood of the "Mojonera del Caracol," extending in the direction of the river and "Loma del Mosquito," has an area of about 43,350 acres, in which the water is scarce, but might be rendered abundant by means of artificial water holes. It is covered with grass, "zotol" and "lechuguilla" and well adapted to the raising of small stock. The second extends along the Rio Grande a distance of some thirty miles, and from three to six miles in width. It has about the same character as the former, with the exception that the water is abundant, being contained in large and accessible water holes. Its area is about 65,025 acres.

The third part of this class of country is located between the "Pico Etéreo" and the "Boquillas" ranges.

They are low hills whose vegetation is the same as the preceding, and sufficient water supplies in creeks, water holes and the Rio Grande, which in this section is everywhere accessible. Its area is about 65,000 acres.

PRAIRIES.

This heading comprehends all the territories not comprised under the preceding divisions. It is covered in all parts with grass and zotol, and in some by "lechuguilla," "maguey" and "nopal." It is for the most part destitute of permanent water, though traversed by a multitude of creeks or shallow river beds originating in the mountain ranges from which in the rainy seasons permanent deposits of water might be secured at small expense by artificial preparations in addition to permanent supplies by means of wells.

These lands can not be considered fully adequate except as pasture lands or stock ranges, in which capacity they are unsurpassed along the northern frontier.

All kinds of grass are found throughout its entire area, except on the summits of a few mountains. All its mountains are easily accessible and adapted to grazing purposes. Water at whatever point may be obtained by the means heretofore indicated. The zotol and lechuguilla are of the largest

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species, the former producing a head of from 1 to 2 feet in diameter, and the latter a fiber long and fine.

Considering these lands in this agricultural aspect the only irrigable parts are those near the river, which are not extensive, so that they could not be exclusively dedicated to agriculture with profit.

Any of the low land would serve for short crops, and in rainy years produce abundant crops of all kinds, the land being a rich sandy loam. The groves comprise pine, piñon, cedar, and oak, of which the best are found in the "Flores" and "Carmen" ranges.

The formation of the mountains is primary and secondary, the rock being composed of granite, syenite, lime, and sandstone.

Indications of gold, silver, and copper are found in the Carmen range and near the Nevada peak; iron is found in nearly all the ranges. That portion of the extensive valley of the Sabinas River in which are located the farms called the Nacimiento, San Juan, Soledad, and the village of Santa Rosa, with its numerous surrounding farms, about a league distant, and covering a breadth of some 3 leagues at the foot of a mountain range of some 3,500 feet high, extending northwest to southeast, is covered with dense forests of oak, pine, and "tazcate," and on the west with the rocky ranges of Antonio Lopez de Santa Ana, which at the point of the Cojos joins that of Santa Rosa. On the north we have first the place called "Sierrita," which in part borders on the great plain of the Nacimiento and, touching the river at the "Rincon," forms the dividing line of the Nacimiento country, running first northwest, thence making a turn and joining the "Sierra de las Borregos," which range runs parallel with the gateway of the Antonio Lopez de Santa Ana range, extending to the cañon of the "Cabezones" Creek—a peak, seen at a great distance, forming its highest altitude.

On the eastern side of the Sierrita lie the two valleys of the Sabinas and the Alamo, separated by some low hills, and their great low lands extending to the foot of the Lomas de Olguin, more than 6 leagues from the Sabinas River.

On the east of the point of Olguin commence the low lands of the Alamo, which here reach their widest part, extending to the foot of the Sierra de San Diego. Toward the south rise the table lands of the Soledad, Cacanapo and Jabali, approaching and retreating from the river by turns, and forming in their meanderings some very rich bottom lands.

The Sabinas River rises among the branches which separate from the Sierra de Santa Ana (originating in a sort of dry gully that extends to the Sierras de Santa Rosa), entering at once into the great valley that here, almost at its commencement, has a breadth of nearly 8 leagues of plain, uninterrupted except by a few hills that cross it. These low lands are composed principally of vegetable clay loam, which possesses all the requisites for a rich vegetation and adaptability for agricultural purposes.

Without much expense hydraulic works could be made to conduct the river water for irrigating purposes.

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The tributaries that enter the Sabinas River from the north are Santa Ana, which, proceeding from the basin of Mapimi in the Serrânias del Carmen, brings at times great quantities of water; the springs of Chilepepin and Anderson, and the permanent waters of the Moras creek; on the south, the creeks called, respectively, Ojo Azul, Cañon and Palma, which latter forms the southern limit of the Nacimiento country. The river forms from Buena Vista to Rincon the division between the farms of the Nacimiento and those in the district of Santa Rosa, crosses these latter as far as the Pass of Oca, and thence divides the farms of San Juan and Soledad. The Sierra de Santa Rosa furnishes a great quantity of water. The numerous and abundant springs that originate in this range are sufficiently elevated to be easily utilized for irrigating purposes, and their force is of great importance for industrial works. The Santa Rosa spring, which rises half a league southwest of the village of Santa Rosa, forms at its rise a stream of water sufficient to irrigate the orchards and a large extent of farming country in its course. The Realitos, San Juan and Garzas springs form at their very commencement streams of sufficient quantity and force to operate all classes of machinery. All the low land on the south side of the river will average in its width about three and a half leagues, and is composed wholly of alluvial deposits, partly from the river and partly from the mountain freshets, which in time of rains are abundant. The soil is black-clay loam, varied in places by a mixture of sandy loam; so that it offers all that is required for agriculture.

Notwithstanding these very important natural elements, the valley is but little cultivated and is sparsely populated, which in part may be attributed to Indian invasions, which in times past were repeated with frequency and on a grand scale. There is no doubt that with an adequate immigration this section would soon be one of the most flourishing in the country. Mining, another important branch of industry, would thus also be given a corresponding impulse in this section, as may be seen from an especial study of the metallic formation of Santa Rosa.

The *Sierra de Santa Rosa* has occupied for centuries the attention of miners. It is in general composed of blue mountain lime, whose caps in the center of the Sierra, nearly horizontal, incline slightly to the southwest; while approaching the foot of the range it becomes more and more perpendicular until it assumes a vertical position.

Here in the plain it follows the carboniferous formation, rising equally at its sides and composed at its point of contact of a calcareous clayish slate, sandy carbonate and two layers of stone coal very close one to the other, of which one rises to the surface with a thickness of about four feet. The coal is of the first quality, and produces good coke. Then follow slate and sandstone; and in this manner continues the carbonic formation, with few interruptions, from the Nacimiento to the Rio Grande. On the Sabinas, some eight leagues below Santa Rosa, and also at Piedras Negras, in the neighborhood of the Fort of Rio Grande, at Laredo and various other

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places, layers of coal run to the surface of the earth. The southern boundaries of the great coal basin appear to be the Sierras of Agua Nueva, Parras, Patos, Alamo, Encinas, Hermanas and the Mota, as well as the valleys of Saltillo, Patos and Parras, form parts of the coal field. The coal found in Parras is very bituminous, and probably belongs to a more modern formation.

This formation extends in a northern direction towards the basin of Mapimi, and between San José and Noche Buena, and San Antonio del Alamo and the Animas are found slate and sand carbonates. Near Presidio del Norte exists a bed of coal 1½ yards in thickness. I do not know how far north this immense deposit of coal extends. Perhaps it will be developed as being a continuation of the northern Texas coal beds, in which case it would occupy a place among the largest coal fields in the world. Its more detailed study will be for science, and more especially for industry, one of transcendent interest.

I have said above that the Sabinas River, from the Pass of Oca, divides the lands belonging to the farming country of Soledad from those appertaining to San Juan. The great plain surrounding Soledad is bounded on the south by the high table land of the same name, which, beyond "Agujita de Arriba," extends to the river. And as it is a well-known fact that the pulverization of volcanic rocks produces the most fertile soil, we may presume that the portion of the valley south of the river is by far richer than the northern portion. Below the "Agujita de Arriba" the valley opens out gradually to a mile in width; thence it narrows again until it reaches the Mezquite, where the eastern point of the Soledad table land touches the river in a pointed, rocky ledge, extending a longitudinal distance of 3 leagues. The said plain communicates at the "Boquillas" with the valley of the Mezquite, which is bounded on the north by the Soledad table land, and on the south by that of Cacanapo, and has a width of 2 leagues, and extends to the foot of the "Piloncillos," the ranch of the Mezquite forming its western limit. The latter is situated on a lime hill, in which the petrifactions characterize the period of stone-coal.

Below the jointure of the Mezquite valley begins the table land of Cacanapo, which forms the southern limit as far as the "Cañada Honda," and in some places approaching the river so closely that it divides the valley into two parts of half a league in width. The pass of the "Cañada Honda" creek is between the table lands of the Cacanapo and Jabali. Below its mouth the valley narrows suddenly, the river approaching little by little it touches the table land at the point of the Angostura. Here commence the farming lands of the Alamo. A straight line from the Angostura to the Jabali, and thence to the "Mesilla de Berroterar" divides the countries of the Alamo and Encinas from that of the Soledad. The portion of this farm which is located on the western bank of the river comprises the greater part of the table land of the Jabali and those of Cacanapo and Soledad, and is watered by the permanent streams of "Mezquite, Bonito, Sauz, Rosita, and

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Berroteran," all of which rise in the Sierra de Santa Rosa. All its bed belongs to the stone-coal formation in which exists basalt, followed by conglomerate and carbonate of sandstone.

On the north side of the river lie the farming lands of San Juan, commencing at the Pass of Oca, extending west as far as the Piedras road, taking in all the lower part of the Alamo River. The valley of this river is separated from that of Sabinas, first, by a low range of hills, which soon ends, and both rivers course along the same wide plain to their place of union. This great plain has been but little cultivated, although nearly all of it, from its situation between two important rivers, is specially adapted to agricultural purposes. The Alamo River originates in the basin of Mapimi, formed by the Cerranias del Carmen, passes along the Bahia and receives many tributaries from the west. In the rainy season it carries a large amount of water, but during very dry weather its bed becomes dry, and it contains water only at intervals in its large water-holes. At a distance from its union with the Sabinas the valley is confined by the hills of the Pinal, Chata, Aire, Alejandro, and Retama, inclosing a site of half a league in width, affording commodious advantages for colonization. A straight line from the mouth of Blanco Creek to the Punta de Olguin separates it from the Alamo country.

Below the ranch of San Felipe there is another beautiful plain, whose mesquites extend toward the east to the large creek of the river, and thence comes down another forest of mezquite, both following its course until reaching the Sabinas River after running along a table land, which only at considerable cost could be reduced to profitable cultivation. The circumstances are more favorable on the opposite or southern side of the river. Commencing at the Angostura, where the Jabali table land touches the river, it extends about a mile south and runs parallel to the river as far as the water-hole creek, embracing a plain of exceptional richness of soil. Another plain stretches on from the mouth of the last-named creek, which continues until the union of the two rivers, occupying a superficial area of 6½ leagues in length by 1 in breadth; and as the river has various points at which the water may be easily diverted for irrigation, this tract of land is under all aspects well adapted to colonization on a large scale. It is not to be supposed that agriculture would here produce any good results without irrigation, for the reason that all this section lies in the region of an unvaried temperature; in other respects this region has a climate very favorable to the raising of wheat, corn, and cane, and its cultivators having all along dedicated themselves to the raising of cotton is good proof of its adaptability to this profitable branch of industry as well as to the raising of tobacco, and principally to the production of mezcal, which at the foot of these basaltic hills finds a climate par excellence. Even rice would thrive abundantly in the valleys. In no part as along the Sabinas is shown the beneficial climatic effects of the proximity of mountains covered with forests. At the foot of the Santa Rosa range vegetation develops rapidly

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without artificial irrigating; and the farms of the Nacimiento and Santa Rosa frequently receive copious showers of rain while the Soledad and San Juan, as well as all the lower country, are bathed in bright sunshine.

There the vegetation is of extraordinary growth and trees of high altitude are found. Beautiful cypress, walnut, and chestnut trees embellish both sides of the river, and the plains are covered with forests of mezquite. The hills are green with all classes of verdure, offering excellent pasture for cattle, horses, and sheep. Below San Juan and Soledad the forest groves diminish, particularly as they recede from the river, and their place is occupied by underbrush only, although the grass is abundant and stock thrives well. The lower part of the Salinas valley, from the union of both rivers to the Burro pass and the mouth of the Aura River, is bounded on the north by the Guates Mountains and a few ranges that separate this valley from the Sabinas valley and the table land of the Jabali; on the west it is bounded by the table land of the Chapote range, and a few adjoining hills with the Santa Cruz range and the table land of the Quebrada; on the southwest by the Burras range, from the pass of the Baluarte and that of Candela; and on the south by the Cartujanos table land, the great plain of Lampazos, and the Mesillas.

The greater part of the valley that occupies the northern side of the river is traversed by the Animas sand hills, which belong to the carbonic formation, and which, owing to the eccentric elevation from volcanic forces, have on the south side a steep descent, while on the north the descent is gradual, losing itself almost imperceptibly in the plain. This land is watered by the Delgado Creek, which, above the Alamo, joins the river. This large plain of more than 130,000 acres would all be tillable land if the water supply was sufficient, but at present only a small portion could be profitably cultivated. The general disposition of the ground renders it favorable to the employment of artesian wells, and with this auxiliary all the Delgado cañon would be adapted to agriculture. The dense ranges of mountains on the west, as far as the Sierra Madre, which form the dividing ridge between the two oceans, are for the most part of eruptive or volcanic origin. Elevated as they were by the powerful forces of subterraneous watery vapors, caused by the formation of caves that have later become filled by the infiltration of rain water. The gradual ascent from the valley of the Sabinas to the center or high ridge of the Sierra disposes a corresponding elevation of the valleys between the successive mountain ranges, like the steps of a staircase, so that these deposits of water must be much higher than those of the Sabinas, and easily accessible as they exist near the surface. The southern part of the valley or plain belongs to the Alamo, and the northern to the Encina farming lands, the dividing line being indistinctly drawn, nor is it possible to state exactly how far west the lands of the latter extend. It appears, however, that its limits extend to the Santa Rosa and the northern part of the Obayos as far as the Puerta, in which case it comprehends all that part below the Aura River. This river has its origin in the Mapimi

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basin, and though its higher course is almost unknown, in consideration of the vast amount of water it carries, it is to be inferred that its tributary basin must be extensive. Its course divides the isolated ranges of the Santa Rosa and Obayos, and its little valley at its entrance to the large one of the Soledad reaches on the north the Berroteran hills, and on the south the Gachupines, both sets of hills being of carbonic sandstone, in which abound animal and vegetable fossils. Farther on the valley suddenly narrows and forms only a deep creek on the east until it reaches the foot of the Quebrada table land, 2 leagues distant; on the west, wind about various serpentine ranges of hills of slight elevation. Its crystal waters course along at first in a bed of solid lime rock and sandstone; but below the Gachupines it enters a limy permeable canal, and its waters are gradually lost until the lower part of the bed becomes entirely dry.

The Alamo lands and the Villa del Progreso have but little of their territory under cultivation and the greater part of the water is therefore not utilized. The southern part of the valley is not inferior to the northern in quality, but only a part of the land belongs to the Encinas and Alamo, the division being a right line from the Puerta de Guerra to Boca del Jabali. The Encinas farm is situated at a distance of a quarter of a league south of the river beside a large spring which with another that descends from the mountains is used to irrigate its fields. The Hermanas ranch comprehends both banks of the Sabinas River between the Burro and Burras passes. Its buildings, both dwellings and storehouses are situated on two hills of conic French form called Las Hermanas (the sisters) from which the ranch has taken its name. Half a league south is a hot spring at a point in the Obayos range. These thermal waters are in an elevated position, and on their appearance at the surface have a temperature of 33° Reaumur; that is, blood heat, and hold in solution a variety of mineral substances such as common salt, lime, etc., and though disagreeable to the taste are of great value for fertilizing purposes. All the fields in cultivation are on the west side of the river and comprise about 4,350 acres, but another square league of the land could easily be watered from the same source, sugar cane, wheat and corn are harvested in excellent condition, and there is no doubt that cotton and tobacco could be raised with good profits.

The Oballas range whose "divorcium aquarum" form part of the western limit, contains nearly in its center the famous pasture lands. Its plain surrounded on all sides by high perpendicular walls, is two and a half leagues in length by one in width, and is covered with succulent grasses. This valley has two narrow entrances, that, on the east known as the Puerto de Oballas, and the one on the west as Borregas. The eastern entrance, from its rocky nature, is only servicable as a bridle path, while the western has a good wagon road. In the midst of the pasture runs a creek of brackish nature good only for stock and fertilization, but at the eastern entrance is a spring of sweet water that supplies the ranch.

The mouth of an old silver mine abandoned probably for the water serves as a habitation for a part of the population. The fields lie at the foot of the

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mountain in soil of the first quality, and only cultivators are wanting to plant them. The rest of the plain is fertile and level. The unpopulated portion known as Tapado, situated in the western margin of the Monclova River, which at a short distance joins the Sabinas, deserves particular mention for the richness of its soil and adaptability for colonization.

A right line from the Chorrera de la Rata on the western side of the high mountain to the north point of the Potrero de los Flores divides the Hermanas from the Mota ranch. The latter takes in the greater part of the valley which on the west reaches to the Gloria ranch, and on the east to that of Candela, being traversed at several places by hills that belong to the geological formation of the stone coal period, the same as the sandstone ranges of the Hormigas which rise gradually to a height of thousands of feet. The most curious of them being the Rata whose immense ledges rise separately and evenly to a height of some 4,000 feet, with a length of about 3¼ leagues by 1½ in width. South of this at the foot of a small mountain, in the bed of a dry creek, is the crater of an active volcano, whence escape constantly sulphuric vapors. Its diameter is 5 yards and its depth has never been sounded, a stone dropped into it being twelve seconds in reaching the water that lies at the bottom. The Panuco, Guadalupe, Sierra Colorada and other ranges have dislocated and elevated the coal formation, and discovered metallic views; for instance, in the Panuco range is found a copper vein mixed with silver and gold, which at the surface is several yards in thickness.

These lands, in consequence of the scarcity of water are better adapted to stock raising than for agricultural purposes.

The wild maguey constitutes the principal richness of the valley, and the inhabitants of the Mota Tayunas, San Gabriel, Enramadas and adjoining ranches, occupy themselves chiefly in the production of brandy and mescal, and these plants spontaneously and without any cultivation whatever, produce such abundant crops that the wine factories in existence can not harvest the offerings of nature.

The extraction of the juice and the distillation of alcohol are practised by ancient and imperfect methods, therein causing a great waste that might be avoided by the employment of modern distilling apparatus; and by cultivating the maguey plant, numerous wine farms could be profitably established that would occupy a high place among those of the country.

The foregoing demonstrated in a fairly clear and evident manner, that the valleys and lands described are admirably adapted to purposes of colonization, while they are easily accessible by good and safe roads, and three important railroads already traverse the State. The Mexican International, Mexican National and the Mexican Central.

NOTABLE RIVERS IN THE STATE.

The Rio Bravo or Rio Grande bathes the northern part of the state. It rises in the State of Nevada, U. S. A., receiving as tributaries the Conchos, Puerco, San Pedro, San Diego, Escondido, San Rodrigo, San Antonio and

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Sabinas, and passes along the northern border of the States of Chihuahua, Coahuila, and Tamaulipas, emptying its waters into the Gulf of Mexico.

The Nazas commences on the eastern side of the Sierra Madre mountains, west of the Partido del Oro, in the State of Durango, entering the State of Coahuila at its southwest corner. Its waters fertilize the land all the way from the starting point through the country of Santiago, Pasaquiaro, Nazas and Mapimi, till they reach and form the beautiful and famous Laguna de Parras, whose margins are constantly covered with water fowl. This river at an earlier date took a more northerly course after entering the State, forming at its termination the Laguna of Tlahualila, but in 1839 it changed its course to its present bed.

The Aguanabal River is in the Tresnillo range in the State of Zacatecas and runs in a northerly direction passing Rio Grande, Nieves, and San Juan de Guadalupe, until it reaches Viesca where it forms the Alamo Lake.

There are other rivers, though not of the importance of those mentioned, among which are the Sabinas and Nadadores before mentioned whose affluents are the Alamos and Salado. The Nadadores rises at the village of Sacramento.

CLIMATES OF THE STATE.

More than the strange configuration of the soil of the State, and its distance from the north pole towards the equator, its elevation above the sea level is that which really determines the variety of its climate, making localities of equal latitude, and separated only short distances from each other, of entirely distinct climates.

All the territory of the State is comprised without the temperate zone. The climates of the State may be classified under three general divisions: cold, temperate and hot.

The first in the order of classification are those in an altitude of 2,000 meters and upwards above the sea level, the second are those of an altitude of one to two thousand meters, and the third, those localities of less than 1,000 meters above the level of the sea.

THE MINERAL REGION OF THE STATE.

From the period of the Spanish Conquest began the development of the branch of mining, though with equal risks and difficulties, from the frequent incursions of the savages, who caused the mines that had been discovered and were being worked to become unpeopled and abandoned, producing necessarily thereby the ruin and decadence of an important source of wealth, upon which Coahuila has always largely depended.

Already in 1674 when the conquistor D. Antonio Balcáral effected his entrance into this province, we are told that vestiges of mineral workings were found, as stated in his report as follows:

On the glorious St. Clemente's anniversary, I, first Alcalde having come within three leagues of St. Cecilia de Castaño in a plain of some two leagues in circumference, which I found deserted and unpopulated, covered with a dense underbrush, and some old walls of

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fallen houses, in one of which were a lot of broken rocks and two furnaces for smelting silver and other apparatus with signs of water conduits, etc., extending to a river running from south to north.

Another of the most ancient mines of the State is that of Potrerillos in the Monclova district.

Santa Rosa mines. — According to the archives existing in the village of Muzquiz, it is apparent that in very early times there was a period of great animation and activity in mining matters in that region. There are 22 abandoned mines that were discovered in the past century, whose names were as follows: *La mina del Rosario*, whose metals produced 12 ounces to the cargo, and was anciently considered the richest mine in that range. La mina Vieja which gave 6 ounces per cargo, La Cruz from 4 to 9, San Alejo 6, Sacramento 1 mark or 8 ounces, Jesus Maria 1 mark, El Carmen 7 ounces, Guadalupe, San Miguel, Concepcion, San Alenogenes, San Nicholas, El Refugio, Moncaras, San José, Nogalitos, Las Higueras and San Bernardo, producing from 3 to 20 ounces. During the present century have been discovered the mines of El Pabellon, Santa Gertrudis, San Juan and the one called Bajo.

According to the latest reports made to the State Department, relating to the mining region just mentioned, there are already 32 mines denounced and opening, and two sites for smelting works. Of those recently denounced in the Alamo cañon the principal ones are: El Cuarzo Grande, of Messrs Ord and Treviño, and El Caballo Azul, by Messrs Wilkinson, Owen and Swilling.

In the Nogal cañon the shaft has been sunk at the Gwendolen mine, denounced by Smith & Co., La Fronteriza, in which latter mine a deep shaft has been sunk and a tunnel excavated, through which rich ores are being extracted that have already attracted the attention of Americans through the scientific assays made of the metals. Mr. Proctor is also excavating a tunnel, and Messrs. Davis & Company possess a mine located between that of Mr. Proctor and the Oso Grande. In the veins of Oso Grande and the Rubi a shaft and tunnel are in operation.

Mr. Richard E. Chism, the mining engineer, has reported on this mineral district as follows:

Formation. — The formation of this district belongs to the Silurian period; it is of slate and limestone, and is constituted by beds that I believe have some 800 to 1,000 meters of thickness. The lime rock probably overlies granite, etc., of the primitive geological formation and is surrounded by plutonic rocks of those called brachytic and porphyritic.

Veins. — The beds of limestone form something like an irregular island in the midst of plutonic rocks; outside of this island, which is about 10,000 meters long by 3,000 wide, ore has not been found. The lime rock on the contrary is traversed by more than 20 veins that all present indications of silver, while some have it in large quantities. Besides the silver veins there are other veins or dikes of volcanic rock that do not contain silver. The silver veins have a general direction between south and west inclining more to the west, while the dikes take a more southerly direction, or between south and east so that the two systems of veins cross each other at various points. The veins of this region metallic as well as the others are true fissures well formed and with every indication of traversing the entire limestone bed, although it is possible that they do not extend through the lower formations. The interior structure of the veins present bands or zones of silver ore alternating with white or col-

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ored streaks of quartz, white spar and calcite. At the contact of the limestone and the volcanic rocks we have layers of iron, silver ore combined with red quartz, and the other minerals above mentioned, but they do not present the same regularity of structure as the other veins. The minerals are chloride and bromide of silver with a mixture of sulphide of the same metal in certain places. Of lead there has been discovered some carbonate and a little galena. As the ores named are all products of the decomposition of sulphides, there ought to be encountered in the depths of the veins a class of ores very different from those at the surface, and it may be possible that the greater part of the mines contain an abundance of lead metals in depth.

From the vegetation and other indications I suppose that the bottom of the valleys of this district is 2,000 meters above the sea level, while the summits of the mountain range must be 3,500 meters above the level of the sea.

It is said that the mean temperature of this mineral district is 61° Fahrenheit, with an agreeable and unvaried climate.

The following assays made of the metal of the district to which we refer give an exact idea of its wealth:

	Silver.	Gold.	Lead.	Copper.
	Oz. per ton.	*Per cent.*	*Per cent.*	*Per cent.*
1. Pinchbeck	16	Trace	.0	.0
2. Copper	1,892	0.60	.0	6.00
3. Copper, red oxide	383	0.10	.14	10.50
4. Carbonates, blue and black	1,455	0.10	.0	.07
5. Sulphides, black, blue, and dark	919	0.30	.78	.10
6. Carbonates, green and yellow	756	1.10	.25	9.40
7. Pearl-gray ore	1,112	1.70	15.80	.01
8. Black iron ore	117	Trace	5.80	.0

The preceding assay has been made by the Saint Louis Founding and Mining Company, and the following by a San Francisco, Cal., assayer:

Number.	Gold.	Value.	Silver.	Value.	Total value.
	Per cent.				
1	Trace		130 4.10	$168.62	$168.62
2	"		26 2.10	33.84	33.87
3	1.10	$2.07	1119 9.10	1,551.36	1,553.43
4	Trace		42 5.10	59.56	59.47
5	1.10	2.07	3096 3.10	4,003.30	4,005.37

Sierra de Ramirez.—This mining district has also had flourishing epochs, in which great quantities of ores have been extracted. The principal mines are La Esmeralda, La Calavera, La Providencia, San Acacio, and one anciently called San Juan de Valenciano. Some of these mines were objects of noisy and prolonged litigation and questions of dispute with the adjoining State of Durango.

Sierra Mojada.—This is the most modern mining region of the State, and for many years was unknown and ignored. By its present name this range has been known from a remote period. It is stated that in 1646 a captain of militia at Parras made an expedition against the savages, penetrating as far as the present mining region, where twelve of his soldiers were

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killed in a skirmish with the enemy, and that from that time it has been known as the Sierra Mojada (wet mountain). In this rich range of minerals there are 32 mines in existence, known as the Esmeralda, San Salvador, La Parreña, San José, Jesus Maria, El Pabellon, Santa Elena, San Miguel, Dolores, La Victoria, La California, La Favorita, La Montaña de Dick, La Sultana, El Regalo, San Lorenzo, San Rafael, La Florida, La Huerfana, La Indita Mexicana, La Aurora, El Carmen, La Filipinas, Guillermo y David, San Dimas, La Huajuqueña, El Cinco de Mayo, San Agustin, San Pedro, San Luis, La Veta Rica, and El Siglo XIX. The ores discovered have a leadish, ironish, and copperish color; they produce from two to eight ounces to the cargo (300 pounds). The products from the year 1880 up to the month of April, 1882, were 29,329 marks, 234,632 ounces of silver, besides having extracted during the same time for the General Government 25,567 marks. The value of the silver extraction is estimated at more than a million dollars, but owing to the imperfect smelting it results with a loss of more than 3 per cent. The following is a scientific report of these metals:

The Sierra Mojada mining region is situated at about 60 leagues northwest of the town of Cuatro Cienegas, and according to barometric observations its level above the sea is about the same as that of Saltillo. The formation of the bed of the cañon or valley is a conglomerate of plutonic rocks, as granite and porphyry, belonging to the Permian period, which is well developed in the cañon of the Tres Rios, and distinguished by its reddish color. It is followed by a stratum of compact limestone, pertaining to the formation of magnesian limestone. Above this are deposited stratum of the Jurassic period, as demonstrated by the different petrifications or fossils encountered in them.

The Sierra Mojada range is from 6 to 7 leagues in length, from east to west, and at the place of the mines reaches an altitude of 300 meters (or about 1,000 feet), rising almost perpendicularly. At the foot of the Sierra, on the north side, exists a vein of ore half a league in length by 20 to 30 meters in width at the surface. The inclination of this vein is about 30 degrees south. On the western side of the vein are found great masses of red oxides of iron, with copperish metals, and in places green silver (chloride of silver). On the eastern side the character of the vein is more of limestone with iron ochre and magnesia, and lead ores predominate, particularly the carbonate of lead with silver ore, averaging from 5 to 12 ounces per cargo of 300 pounds and 20 to 20 per cent. of lead, etc.

There is no doubt that this mining section is of great importance, and in time new discoveries will be made as the country becomes settled.

The mineral localities herein described are the principal ones of the State, although there are besides mines of excellent ores at Candela, Arteaga, Ramos, Arispe, and others.

The Coal Region of Coahuila.

A brilliant perspective awaits this State in its rich and extensive beds of stone-coal, whose incipient development has already produced bountiful results. At the west of the village of San Juan de Sabinas, in the region of San Felipe, exists an extensive coal mine which the owners have been

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working for some time past and disposing of the coal to the Mexican International Railroad, for whose supply it is nearly sufficient. Another coal mine is being worked in Santa Rosa range, in the district of Monclova, and its products are sufficient for the smelting works of Cedral mines. Other coal mines are being worked near the towns of Juarez and Guerrero.

Mr. Henderson has assayed the coal of the San Felipe mine with the following results: 62.32 per cent. of permanent combustible, 19.22 per cent. of volatile, 18.88 per cent. of ashes, and 00.54 per cent. of water. The scientific observations of Mr. Koehler give an exact idea of the richness of this coal region and are herewith appended. Much has been said of the precious metals that abound in the mountains of Santa Rosa, Candela, Panuco, etc.; but the most important and valuable mineral in the future wealth of this country, the stone-coal, has been passed over in silence. At less than half a mile from the well-known silver mine of Cearal, situated 2½ leagues southeast from Santa Rosa, appears two coal beds, one of which measures over 4 feet in thickness. The formation of this locality, composed of slate-clay, alternating with stratum of sandstone, is in the mountains of blue limestone. The depression at the foot of the mountains is perpendicular, separating itself more and more towards the valley of the Sabinas River. I shall try to give an idea of the extent of the coal formation in the northeast of Mexico. The point furthest north, where coal exists to my knowledge, is Presidio del Norte, on the Rio Grande, where the formation accompanied, according to the report of the mining engineer, Mr. Schucharat, is identical with that observed at Santa Rosa. The vein shown him for inspection, and which measured 1½ yards in thickness. Another locality of vast extent is the great desert or plains of the Bolson de Mapimi, between San José de Piedras and Noche Buena, and although Mr. Schuchardt, in his rapid trip through this country, made no discovery of coal, he inclines to the belief of its existence there. Observing the continuance of these plains and of the ranges of mountains, the extension of the formation of coal towards the Rio Grande is apparent. When I passed through this section of the country, nearly all the mountains consist of metamorphic rocks, porphyric and serpentine, with their numerous transitions of one into the other. The metamorphic action may be observed in the coal formation. In some localities the beds of slatestone and sandstone are found in their natural state, but further on they commence to change and present porphyry of very different colors and composition, the beds preserving their original course and depth (about 15° S.W.). Small veins of spar limestone, of an opaque appearance in the adjoining beds, unaltered by slate-clay, have been transferred into beautiful transparent Iceland spar, with double refraction. Towards the southeast, 1 or 2 miles on the road from San Antonio de los Alamos to Santa Catarina, again cross for many miles hills of slate-coal not in the least changed. The chain of mountains in the neighberhood present very little alteration from there to the Puerto de Obayos, no metamorphisms being noticeable, here and there being small hills and table lands of eruptive

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rocks, as basalt, amygdaloid, etc. Further on to the southeast, near Monclova and the Mota, the slate and sandstone appear again, and it is said that in the table lands of the Hormigas the coal shows its existence, also at the south of the cañon, where Saltillo is situated. A slate similar to that of Santa Rosa rests on the base of blue limestone, near Parras. Here the limestone is more bituminous and manifests the vegetable texture. It is still to be determined if this carbon has any connection with that of the east, or if it is of a more recent origin and belongs to some other period. Less interrupted by the upheavals of the mountains, the formation of carbon extends from the Nacimiento, at the origin of the Sabinas River, to Piedras Negras, on the Rio Grande, following this river to Laredo and to the mouth of the Sabinas River, it is bounded on the south by the Patos mountain range. In many parts appear these carbon crests, and the samples that I had an opportunity to examine are of very good quality and produce excellent coke. The extent of this formation north of Piedras Negras is not known to me, but its connection with the great coal-bed of Texas is very probable, and the connecting link may be discovered later. A more careful and extensive examination would lead undoubtedly to the discovery of many new localities of coal deposits, at present unknown or concealed under deposits of alluvium. Before this nobody had made use of coal, although a feeble effort was made to smelt lead ores with a percentage of silver. Not knowing how to convert the coal into coke furnaces became clogged with uncalcinated coal, and good results were not obtained.

Near Monclova, in the mountain ranges of Candela, are found also in abundance silver, copper, iron, and other ores, also near Patos, which, with the assistance of the neighboring carbon, may some day be utilized. Magnetic iron is also found that exhibits polarizing qualities. In some veins are found, near Castaño, indications of having been worked at an earlier period, but it is not apparent with what object. Some of the numerous and extensive copper veins have been worked to a depth of several yards, on account of the gold it was supposed that they might contain, and in the crests are displayed carbonate of copper, pyrites of copper, etc., with granite for mould, that produce from 5 to 15 per cent. of copper. The granite is easily melted and forms at the same time a very good scoria.

Races of the State.

The mixture of Spaniards and indigenes is the predominant race throughout the State, next the Tlaxcaltecas, who were transplanted here from the ancient Republic of Tlaxcala by the first Spanish conquerers of the country, they were brought with them for the pacification and settlement of this country, known at that time as the Province of Nuevo Estremadura. Of those who came with Don Francisco Urdiñola, a portion founded the town of San Esteban, now a part of Saltillo, others founded Patos, Parras, Viesca, and other towns on the frontier. There exist also in the State some remnants of the tribes of Seminoles, Lipans, Kickapoos, and Mescaleros, who are peaceable.

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Political Division of the State.

The State of Coahuila is divided into five judicial districts, viz: Saltillo de Ramos Arispe, Parras de la Fuente, Viesca, Monclova de Muzquiz and Rio Grande de Zaragoza.

Saltillo.

This beautiful capital of the State of Coahuila is situated on the northern descent of the pendant of the table land known as the "Ojo de Agua." Its topographical situation forms a beautiful perspective from the stretch of country on the south and the exuberant vegetation in which it is always clothed. This table land is formed in the western branch of the Sierra Madre range, where it makes a descent on the northern side, which in some places is gradual, and in others is formed of hills and ranges, some of which reach a high elevation. At the foot of these hills reclines the city of Saltillo, with the "Ojo de Agua" table land for its southern horizon, on the east the Sierra Madre, on the west the Cerro del Pueblo, while on the north the view extends more than a hundred miles, in whose perspective rise multitudes of hills surrounding delightful valleys. The name Saltillo is supposed to be a corruption of an expression in the Chickimeco language signifying, "high land of many waters." And this signification gives a clear idea of the character of the location of the city. In effect the city of Saltillo, reclining peacefully above the gentle declivity on the south, appears to slumber amidst the murmur of the many rivulets formed by the springs above, whose crystal waters supply the numerous fountains of the public squares and private dwellings of the city. Besides the excellent quality of the water of these springs, that, called the "Ojo de Agua," from which the fountains are supplied is of a sufficient elevation to force the water entering the fount to rise to any height desired. Few populations possess the number of fountains that Saltillo enjoys, all of which are supplied by the "Ojo de Agua," leaving the rivulets of the other springs for the benefit of baths, washing, and irrigation, and water-power for the mills and factories of the city.

Settlement.

The original records of the founding of Saltillo can not be found in the archives of this city, they are supposed to exist in those of Durango, as the jurisdiction extended east as far as the valley of Saltillo, and comprised also that of Parras, so there are good reasons to conjecture that these interesting documents may be found in the archives of Durango, because of the strict obligation on the part of the conquerors to render an account of any new locality settled by them. In the year 1829 the Governor of the State, D. José MaViesca, endeavored with great diligence to discover the whereabouts of the original titles, consulting with this object the archives of the Marquiz of Aguayo, but without success. The discovery of Saltillo is due to D. Francisco de Urdiñola, Senior, who was peaceably received by the tribes inhabiting this region, and when at a later period he wished to govern them

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with energy, the Indians revolted, and in the contest that ensued he was severely wounded and was obliged to relinquish his conquests, and finally died of his wounds at Mazapil. After a few years D. Francisco de Urdiñola, son of the former, confirmed his father's enterprise, according to the instructions received from him before his death.

In the year 1575, D. Francisco de Urdiñola, jr., arrived at Saltillo on the 23d of July, and held conferences with the tribes of Huachichiles and Borrados, who inhabited this territory, having their principal residence in the mountain range on the east of the present site of the city. Peace was consummated on the 25th of the same month and year, when possession was taken of the place and the name Santiago del Saltillo was given it, in consequence, being the calendar day of that saint (Saint James). Urdiñola was accompanied by four hundred Tlaxcalteca families and sixty families of Spaniards, the principal of whom, after Urdiñola, being General D. Matias Aguirre, Cristobal Perez, Diego Montemayor, Diego Rodriguez, Alonzo R. Gonzalez, Pedro de Ubergo, Juan Navarro, Alberto Cantú, Santos Rojo, Mateo Perez, Martin Solis, Melchor Alvarez, Fortunato de Aguirre, Juan Perez, Jesus Hernandez, Alberto Fernandez, Francisco Martiñez, Roderigo Perez, Alonzo Fernandez, and Pedro Gentil. The first cure Saltillo had was Rev. Urbaldo Cortez, who accompanied the first settlers.

Although the tribes of Huachichiles or Cuachichiles and Borrados lived in peace with their conquerors, still they did not unite with them, but remained separated until the year 1591, when a certain Enrique or Villamanrique made propositions to these Aborigines, and through Caldera, a Chichimeco chief of great influence, after many conferences with the old men and chiefs of the tribes, was successful in inducing them to adopt civil life and subject themselves to conditions proposed by the Spaniards. By the preceding it will be seen that Urdiñola, jr., was the founder of Saltillo and Pueblo de San Esteban, and at the same time the first conqueror of Coahuila. As before said, D. Santos Roja was one of the Spaniards who came to Saltillo with Urdiñola. He was a merchant and a devotedly religious man. His wife was Doña Beatrice de las Ruelas, of Mexico. From his personal property he constructed the chapel that forms part of the parrochial church building dedicated to the services and prayers for the dead, of which he was a devotee.

D. José Ma. Jove, who for several years was administrator of Patos, Bonanza, and Rosario, in the Parras district, had occasion to examine the archives of the Marquiz of Aguayo, at the instigation of the cure of Saltillo, who desired to investigate the founding of the city. He could not, however, discover any data that indicated the whereabouts of the document of settlement, ascertaining simply that D. Francisco de Urdiñola, jr., captain of Mazapil, organized the expedition for the conquest of territories subsequently known as Coahuila, the entire cost of the expedition being paid by himself. He brought into the country the first herds of horses and cattle, and the first flocks of sheep and goats, distributing them in localities of

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good pasturage and water. The following lands about Saltillo were distributed among the Spaniards who accompanied Urdiñola, and whose several residences received the names of their first owners. The slaves that he brought were sent to Patos, and the Tlaxcalteca Indians remained, a part of them, at Saltillo, founding the Pueblo de San Esteban, and the remainder were established at Parras.

Municipality of Saltillo.

Saltillo is bounded on the north by Ramos Arispe, on the east by Artega and the State of Nuevo Leon, on the south by the States of San Luis Potosi and Zacatecas, and on the west by the town of Patos. Its population is about 30,000 inhabitants. Its latitude is 25° 25′ N., and its longitude is 1° 15′ W. of the meridian of Mexico, while its altitude above the sea level is 1,597 meters, or about 5,200 feet, according to barometrical estimates by Mr. Miguel S. Maynes.—SALTILLO, MEXICO, *January 25, 1888.*

JOHN WOESSNER,
Consul.

LAND TENURE AND SUCCESSION LAWS OF SWITZERLAND.

It is certain there can be no better security for the stability of the institutions of a country than by enlisting a large number of the people in their support, by giving them a stake in the prosperity of the soil. There is no country in Europe where land possesses the great independence and where there is so wide a distribution of landownerships, as in Switzerland. Agricultural industrial education and facilities for the acquisition of land have produced skillful and thrifty cultivators, of small holdings with security of tenure, representing two thirds of the entire population. There are no primogeniture, copyhold, customary tenures and manorial rights, or other artificial obstacles to discourage its dispersion among small owners. No entails aggregating lands and tieing them up so that no living person shall be full owner, but a mere *locum tenens* for some unborn child. No family settlements with "tenants in common in tail," with "cross-remainders" in tail, by means of which an estate is tied up till some tenant-in-tail obtains the age of twenty-one years, when he is able with the consent of his father who is tenant for life, to bar the entail with all the remainders, but as a rule when the dominion is thus acquired over the property, it is usually exercised in a re-settlement on the next generation. There is no feeling, that land was made to minister to the perpetual elevation of a privileged class, but a widespread and deep-rooted sentiment, as Turgot puts it, that "the earth belongs to the living, not to the dead," nor, it may be added, to the unborn. The natural forces of accumulation and dispersion not only have fair play but are in every way facilitated, being unhampered by building leases for 99 years, perpetual and irredeemable rent, heavy expenses of transfer and complications of titles. The wars of the 15th and 16th centuries exercised indirectly a

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considerable influence on Swiss land tenure, by breaking up the larger properties—monastic, conventual, and private—which for some time had been steadily accumulating, and which now became gradually redistributed among a far greater number of proprietors. It is from this period, in fact, that the existing system of land tenure in Switzerland may be said really to date. The feudal rights exercised by certain Cantons over others, which took the form of land charges, were all swept away at the time of the construction of the Helvetian Republic in 1798. Since the commencement of the present century, and especially since the Constitutions of 1830 were framed, the land throughout the whole of Switzerland has been completely emancipated, the system of peasant proprietorship working side by side with that of small tenant farmers. The communal spirit, it is true, still prevails extensively with its various property rights in fee-simple and usufruct, for the common benefit of the members of the Commune, but does not interfere with the laws affording facilities for the acquisition and transfer of land. The general tendency of these laws is to discourage centralization or the accumulation of landed property in a few hands, the very idea of which is repugnant to the Swiss national character. And it is certain that this system, the subdivision of the soil among a multitude of small proprietors, for the most part energetic, industrious cultivators of their own holdings, is attended with the happiest results, and has contributed in no small degree towards maintaining the national spirit of independence and self-reliance, the happy and contented condition which so illustrates the country's peasant-proprietary, at once the strength and safety of the Republic.

There exists no Federal Land Code in Switzerland; in all matters relating to the tenure of property, each Canton is completely sovereign; but the Federal Code of Obligations adopted in 1881, contains twenty-five articles relating to the leases of land. This exercise of a very doubtful power by the general Government, was claimed at the time of its passage, by some of the best constitutional lawyers to be an interference in the ownership of the soil, and therein an infringement of the rights guaranteed to the cantons. The supporters of the measure met this objection with a very subtle and strained distinction as to the effect of the proposed law—holding that it merely had to do with the rights of persons. One in reading its provisions must concede they have a very intimate and important connection with landed property. However, the operation of the law has proven very satisfactory, and is now generally recognized as meeting desirable ends that could not otherwise be so efficiently done. It may be of interest to note some of its leading features. All contracts for leases are required to be written. If the farm be delivered to the tenant in a condition unsuitable for the purpose for which it was hired, the tenant may denounce the lease. If deteriorations or restrictions not mentioned in the covenant, take place, without the tenants fault, he may demand proportionate reduction of rent or denounce lease, if proper restitution is not made within a reasonable time. Urgent repairs of any kind, needed during the lease, are to be made by the tenant. The lessor has the

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right to retain the movables belonging to the farm, as security for the payment of his rent for the past and the current year. This shall not include effects which according to the laws in reference to debt and bankruptcy cannot be included in a forced execution. The lessor has the right to appeal to the authorities, to compel a tenant who wishes to leave the farm before paying his rent, to leave property behind him sufficient as a guaranty against non-payment of the same. A tenant cannot be relieved from rent when through his own fault, or even from any accident in which he was directly concerned, he is unable to enjoy the use or benefit of the lease. If implements, stock, etc., are included in the lease, each party must furnish the other with a detailed inventory duly signed, with an estimate of their value. The lessor must bear the expense of any repairs on a large scale which may become necessary during the lease, as soon as he receives notice of such from the tenant. The tenant must make a conscientious use of the land, according to the terms of the lease and especially to keep it in good state of cultivation — he cannot alter the existing mode of cultivation or cropping to the damage of the land or the injury of a subsequent lease — he must conform with all local laws and customs as to paths, foot-bridges, ditches, dykes, hedges, roofs, aqueducts, etc., and must replace all implements and tools of small value which may have become worn out. The tenant cannot underlet without consent of landlord. In absence of special agreement as to payment of rent, it must be paid according to the local customs, and in event of extraordinary accidents by which he loses a considerable portion of his year's produce, if in no way due to any fault on his part, and if not covered by insurance or taken into consideration in fixing the rent, he may demand a proportionate reduction. In the absence of agreement or prevailing customs, each party has the right to give the other notice, which in case of the land itself, must be at least six months before the 11th of November. With this notice, even in cases of long leases, where circumstances arise to render its continuance intolerable to either party, it may be terminated with a just indemnity to the other party; this indemnity, even when referred to the courts for adjustment, must not be less than one year's rent. If on the expiration of the lease, the tenant remains in possession with the landlord's knowledge and without his objection, the lease will continue in force from year to year, until the six months notice is given by one of the parties. When a tenant fails to pay his rent at the time it falls due, the lessor may give him notice that if not paid within sixty days, the lease will be cancelled — in such cases the tenant loses his right to the growing crops, but he must be reimbursed for the expenses incurred in their cultivation, to be credited on arrears of rent. The lessor has the right to cancel a lease where the tenant neglects to keep the farm in good order, or if after receiving notice, he fails to execute any necessary repairs within the period designated by the landlord. In event of a tenant's bankruptcy, the lease expires *ipso facto*, when such bankruptcy is declared. At the expiration of a lease the tenant must hand over the farm and everything specified in the inventory, just as they are at that moment,

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with indemnity for any injury resulting to want of care on his part, and no compensation is due him for improvements merely the result of ordinary care. The tenant must leave on the land the straw and manure of the preceeding year — if however it exceeds what he received when taking possession, he can claim compensation for the difference. The outgoing tenant at the expiration of his lease, has the right to compensation for any increase on the original valuation of the farm which is the fruit of his outlay and labor. This is sometimes ascertained to a nicety by means of a system of chemical testing of the soil.

The full text of these provisions is remarkable for the patient and careful consideration of detail that marks Swiss federal legislation, leaving but little room for misunderstanding or dispute in construction and enforcement.

But it is to the cantonal civil codes we must look for the laws regulating land tenure proper in Switzerland. These codes appear to be derived from three distinct sources, corresponding with the ethnical character of the population, viz., the Roman, the old Germanic, and the Napoleonic codes. The cantons of Geneva, Neuchatel, and the western portion of the canton of Berne (known as the Jura-Bernois), have the Code Napoleon, it may be said in its entirety; the codes of Vaud, Fribourg, Valois, and Tessin are based on the old Roman law, harmonized in some features with the Code Napoleon; the cantons of St. Galle, Appenzell, Uri, Schwyz, Obwalden, Glarus, and Bale-Ville are still governed by ancient statutes or customs, without any defined codes; the remaining cantons, constituting what is known as German Switzerland, have their land laws framed on the old Germanic code, with an admixture of the Code Napoleon. There were no cantonal land codes previous to 1819 — the oldest one, that of Vaud, dating from that year. To show the practical working and leading provisions of these codes it will be necessary to give a summary of those in a few of the representative cantons.

The canton of Berne, the most populous, and the seat of the political capital, has two separate codes — the western or Jura district having adopted the Code Napoleon in its entirety, while the other portion of the canton still uses the old Germanic code, with alterations and improvements grafted on to it. In both districts the acquisition and transfer of land is of the most simple character. The sale of land is absolutely free and unrestricted, the only formality consisting of a contract drawn up and signed by both parties, and deposited at the cantonal registry office. There is a small registration fee, which is divided between the canton and the commune. The largest landowners hold from 150 to 200 acres; these are very exceptional, 40 to 50 acres being considered large farms, while from 5 to 15 acres are the most common. Once every ten years the land throughout the whole canton is valued for purposes of taxation. Only one-third of the landed property is at the absolute disposal of the testator, the remaining two-thirds being divided in equal portions among the children. The only way a testator may favor a child is to bequeath to him that portion (one-third) which he has at his disposal. Should, however, the wife survive her husband, she enjoys the absolute use

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of all his property for her life, with no power to alienate or deal with it in any way, save with the consent of the Committee of Wards, a body to be found in every Bernese commune. Failing wife or children, the property is divided equally among the heirs at law, should there be no will disposing of the available one-third. There is an exception, not embodied in the code, but founded in an immemorial custom, which prevails in the extensive and fertile valley of the Emmenthal (canton of Berne), where the youngest son inherits by right all the landed property at the decease of both his parents, subject to an annual indemnity paid to his brothers and sisters, who in this way may be said to hold a primary mortgage on the land. It is this custom which has held together the comparatively large estates of 150 to 200 acres, above mentioned.

In the canton of Vaud the sale and acquisition of landed property is as unrestricted as in that of Berne. One-half of the property is at the disposal of the testator; the other must go to the children in equal proportions. Failing issue, and if the deceased died intestate and be unmarried or a widower, his brothers and sisters succeed to half of the property, and his parents to the other half. If none of these members of his family survive, the property is divided equally among the ascendants in the paternal and maternal line. In this canton, where the breeding and rearing of cattle forms so important an industry, certain legislation closely appertaining to the occupation of the soil is worthy of a passing notice. This is *cheptel*—a contract by which one party undertakes to supply another with a certain number of cattle to tend and feed under certain specified conditions. This "cheptel" is of various kinds. In one the hirer has the right to the milk, work, and manure of the cattle, the wool and increase being shared equally, the loss also equally divided. It is illegal for the two parties to enter into any contract by which the hirer undertakes to bear all losses. Then there is "*cheptel à moitié*" (partial)—where two owners of cattle who do not possess a sufficient number to lease them, each on his account, join together and lease their stock to a third party, sharing the profit and loss with him on the same conditions and terms as in the first described. The third class of "cheptel" is where the tenant farmer rents the landlord's cattle in conjunction with the farm, on condition of his taking all risks, and that when the lease expires he shall leave behind him a herd of cattle of the same value as that at which they were originally estimated. All the profits from these cattle go to the farmer until the lease expires. The manure, however, belongs to the farm, and must be employed for its exclusive use. The leasing on *celpage* of cattle bears a close resemblance to the ordinary "cheptel," only it is on a smaller scale, being usually practised by owners of one or two, instead of a large number of cows. In this case the hirer has only a right to the milk, and to the calves which may be born during the lease.

In the canton of Basle the testator can only dispose of that part of his estate which falls to his heirs. If those heirs be children he may by will deprive them of at most one child's interest or share, not in any case to

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exceed a fourth part of the entire estate. If the heirs be parent he can dispose of one-half of the estate, or more by virtue of a legally authenticated assent of the latter. If the wife survive, she is entitled, in the absence of a marriage settlement, to two-thirds of the estate. A marriage settlement may entirely annul the operation of the community of property which otherwise prevails. In this case the entire estate of a deceased husband or wife falls to the heirs. Sons and daughters share alike. Brothers and sisters are regarded alike whether both or one of the parents are the same. In the absence of descendants, parents share equally as heirs; if one of the latter is deceased the survivor takes the whole. Descendants of a deceased heir who are within the fifth degree of consanguinity share equally the part which would have fallen to their ancestor. Illegitimate children inherit from the mother, but not from the father unless legitimated by marriage of the parents.

Canton of St. Galle: A testator, in case he leaves but one child, can dispose by will or otherwise of one-half of his property; if two children, only one-third; and if three or more, not more than one-fourth. In event of having no legal heirs he may dispose of three-fourths of his property, the remaining one-fourth passing to the canton. If the heirs be father, mother, or other near relatives, he is not permitted to dispose by will of more than one-half. If there are relatives beyond that and within the tenth degree he may dispose of two-thirds of his property. If the wife survives she is entitled to one-half of the estate; however, if there be children also then the wife takes only a child's part. Sons and daughters take alike, with this modification—the sons have the preference of the real estate; tools and implements, if they be mechanics; books or libraries, if they are professional men—for which, however, they must pay a fair price to the other heirs. Two per cent of all property disposed of by will goes to the canton. Any person eighteen years old and of disposing mind may make a will. Every will must be attested by three witnesses, two of whom must be able to write their names. A woman's property brought into the marriage remains her property, the interest only to be appropriated by the husband for the benefit of the family.

Canton of Zurich: No limitations as to right of testator to dispose of his property by will, except as to interest of surviving wife. When the wife survives she first is entitled to withdraw the property she brought into the marriage, the household furniture in case it does not exceed one-fourth of the net estate, and if there be children she takes the usufruct of one-half of the estate or the fee-simple of one-eighth; if there be no children, but parents of the deceased living, she takes the usufruct of the whole estate or fee-simple of one-fourth; if only grandparents living, the fee-simple of one-half and the usufruct of the other half. If the wife marries the usufruct is reduced one-half. As to sons and daughters, in the father's estate the sons have a preferred right to take the real estate with the appurtenances against payment of a moderate valuation. Sons also have a preferred right to take the property pertaining to the paternal industry, such as tools, professional imple-

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ments, cattle, etc., without, however, any deduction from the actual value thereof. Sons take without compensation the paternal wardrobe, arms, outfit, bedding, and seal. Family records go to the oldest son without charge. The common paternal inheritance is divided equally among sons and daughters. In the maternal estate, the clothing, house linen, and washing utensils go to the daughters without charge; also the jewelry, valuables, and savings of the mother if they do not exceed in value five one-hundredths of the estate, any excess must be paid for by them. The common maternal inheritance is divided equally, but the sons have the preference of the real estate against payment of its full value.

In the canton of Geneva the Code Napoleon or Code Civil Français substantially exists, that canton having been the capital of the French Département des Léman from 1798 to 1814, when it joined the Swiss Confederation, becoming the twenty-second and last canton.

The notion of family co-proprietorship predominates in the German cantons and testamentary power is much limited. In 1865 the canton of Appenzell went so far as to decree that it was an anomaly that a free citizen who enacted laws for himself should be fettered as heretofore in his testamentary powers, and that he should have thenceforward the right to dispose by will of one-fiftieth of his property if he had children, and of one-twentieth if he had none. And in the Canton of Zurich, before the Bluntschli's code, those who had children were obliged to leave them all their property, and failing children, the relations of whatever degree, had a right to their legitimate share. In certain cantons, that of Glaris for instance, the consent of the heirs is necessary before the smallest legacy can be made. In the Canton of Midwalden, the question of the validity of a legacy is submitted to a jury, who are empowered to decide whether such legacy is just and in conformity with the position of the testator, the legatee, and the testator's children. Three German cantons, Schaffhausen, Thurgovie and the Grisons, which place restrictions on the free disposal of the inherited property, are much more liberal in the case of acquired property. In Southern Switzerland, except in the cantons of Fribourg and Valais, the law goes so far as absolutely to forbid special contracts made during lifetime with regard to succession, except in the case of husband and wife, so as to have the testamentary form free and untrammelled with regard to property which is at the disposal of the testator; but in fact no such thing as a law of entail is known in any of the cantons. Some of the canton laws evidenced an alarm at the infinitisimal subdivision of land, and Argovie, Thurgovie and Soleure have passed laws fixing the limit for subdivision at extent varying between 5,000 and 20,000 square feet. There is undoubtedly a growing tendency to facilitate rather than to restrict, the disposal by will of property in general, in view of the more extended movement of the population and the consequent dispersal of families, and the laws of enforced succession are being gradually modified and repealed. At present as regards succession, as to landed or any other property—for in point of fact no distinction or very little is made between the two—there is a vast

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dissimilarity in the legislation and practice of the various cantons. But through all the varying degrees, in almost every canton there is some limitation to parental freedom of bequest, intervening for the protection of the children — in some a distinction is drawn between goods and lands inherited and those acquired, but it is the same principle of the "legitime" as the legal portion of the children, one which the testator is not allowed to exercise powers of disposition, and under the term "children" by many codes are included descendants of whatever degree, who, however, take together as representatives of the stock from which they spring.

Switzerland situated in the very heart of Europe presents many striking contrasts to the institutions and customs that surround her, and in none more so than in her treatment of land as a source of national comfort and well-being, instead of as an instrument for maintaining family dignity. No sort of social distinction or political privilege is associated with its ownership, and the legal differences between real and personal property especially as regards the simple and inexpensive transfer being reduced to the smallest minimum that practical convenience will allow. The cultivator, who is generally the proprietor, is shorn by neither rent nor taxes, the land fulfills its duty and guarantees the workers a fair enjoyment of the produce. As for the security of the property, it should be tolerably well secured where two-thirds are owners. It is certainly the best security for anything to intrust the largest possible number of persons in its preservation and the smallest in its destruction. The households in Switzerland each with its little land are said to number nearly six hundred thousand, one-fifth of the population. Even in the cantons of the large cities it is estimated that nearly a twelfth part of the people live in the towns. As an instance of the minute subdivision of the land, there is a case reported of a cherrytree in the Bernese Oberland that was found to belong to seven different proprietors. "Three acres and a cow" are literally exemplified in Switzerland. It is a fortunate condition. No occupation is fitted to develop a morally as well as physically healthy race than husbandry — genuine husbandry when the tiller of the soil is at the same time the owner. Poets, historians and philosophers who love to dwell on the corrupted children of the towns and the charms of the simple virtues of the staunch ploughmen, would find their Utopia in Switzerland.

Blessed in not being a great Power and required to spend millions in the game of European diplomacy, her whole attention and ambition is directed to the welfare and advancement of her people. And trace up the solid sterling elements of Swiss peasant character, and their source will be found in the educative power of property, especially property in land, and the absence of that inequality which Matthew Arnold says, "materialises the upper class, vulgarises the middle class, and brutalises the lower." The Swiss peasant has not only the responsibilities of a capitalist on a small scale, already a most important mental training to begin with, but he receives and has long received the benefits of a political education. The blue-bloused son of the soil, in time perhaps is *conseiller municipale* and mayor of the commune. He is

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bound to know something of the laws and constitution of his country. He is accustomed to public business, to the interchange of ideas and to the give and take of civic life generally. He indeed inherits a certain amount of political education, as well as those qualities of foresight, thrift and sobriety for which he is so remarkable. His courtesy and intelligence would do credit to any class in any country. He works hard, perhaps fares hard, his bread may be black, his raiment scanty and his existence plodding, but he is a free man and independent, he has his home with its dignity and stimulus of ownship, and he is contented and cheerful.—BERNE, *March* 1, 1888.

BOYD WINCHESTER,
Consul General.

THE NATIONAL LIBRARY AT LIMA.

I venture to lay before you a brief abstract of a report recently published here regarding the condition of the celebrated National Library of Lima, which at one time held a most important, and indeed an exceptional position, from the value of the treasures it possessed. But during the period of the occupation of Lima by the victorious forces of Chili the general in command permitted the sacking and spoilation of that magnificent collection, allowing his soldiers to use the building as a barrack, and to dispose of its precious contents to satisfy their most trifling requirements. Manuscripts of inestimable literary value were afterwards found in the drinking shops and groceries, mutilated and used for wrapping paper, where they had been exchanged by the troopers for their supplies of rum and tobacco. Numbers of the most valuable treasures of the library were shipped to Chili to fill the shelves of private individuals and those of the national library at Santiago, and with great difficulty only a very limited portion of them has been recovered. Protests at the time were made against these depredations, the better feelings of the despoilers were appealed to in vain by neutrals at Lima, and the minister of the United States did all that was in his power to prevent the sacriligious robbery; all to no result. When the conquerors left Lima the library, occupied as a barrack and military office, was almost in the condition of that of Alexandria after its wanton destruction. Since then the efforts made towards re-establishing it have met with much success. The Government, the municipality of Lima, and many private persons have been liberal and generous in their donations of money and books. The Government of the United States, through its different departments, especially the Smithsonian Institute, has contributed a large number of valuable volumes. The French Republic has also enriched the stores of the renascent library, and many important exchanges have been effected with institutions of a similar class on this continent.

Before the spoilation the library contained 56,127 volumes. When the Chilian army departed there were less than 800 volumes scattered on the

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ground amidst the burned shelves, the broken desks, and general ruin of the building. The only reminiscence of the former glory of the institution was in the portraits of the long line of viceroys, which the victors regarded as of little interest at home, and of no saleable value here. From the report, of which an abstract is enclosed, the flourishing condition of the library at present will be readily apparent. — CALLAO, *March 5, 1888.*

H. M. BRENT,
Consul.

Thirty days after the independence of Peru was proclaimed at Lima, on the 28th of August, 1821, General San Martin and his minister, Garcia del Rio, issued a decree establishing the National Library, and on the 17th of September, 1822, it was solemnly inaugurated, possessing then 11,256 volumes, of which 600 were donated by the university, the municipality and General San Martin. The basis of the library was that left by the Society of Jesus when its members were expelled from the domains of Spain, and which numbered over 8,000 volumes. This was soon augmented by a gift from Dr. Juentes Pacheco of 7,700 books, some of which were of great variety and value, and in 1830 the shelves contained 20,488 volumes in all. Steadily increasing under the able direction of such distinguished men as Davila-Condemarin, Vidal, Vigil and Odriozola the possessions of the library, after fifty-eight years of existence, were 56,127 volumes, when in March, 1881, the Chilian General Logas ordered that its treasures should be looted by his soldiery. The library possessed the rarest and most valuable editions of the Holy Bible, of the Divina Commedie and of Don Quiyote. Over 200 Elzevirs and 150 incunabula, dated up to 1591, established the library among learned and literary men as by far the most valuable in South America.

When the Chilian army of occupation retired from Lima in 1883, the Government of Peru named as director of a library which then existed but in name Don Ricardo Palma, one of the most erudite writers which Peru has produced, and whose poetical and quaint traditions of the early colonial days and of the stirring period of the Independence have carried his fame wherever the Spanish language is read and spoken. He found less than eight hundred volumes scattered throughout the building, on the floors and in the stalls, which the Chilian troopers had built out of the moth-eaten shelves of the library. Cart loads of books had been sent to Callao, and from there shipped to Chili, where they enrich the national libraries of that Republic. Thousands of valuable volumes and inestimable manuscripts had been disposed of by the soldiers to gratify their taste for Peruvian liquors and tobacco. Fortunately many of these works had fallen into the hands of appreciative persons, who only awaited the departure of the spoilers to return them to their legitimate owner, and Señor Don Ricardo Palma speedily acquired from this source nearly twelve thousand volumes which had been impressed with the seal of the library. His efforts were unwearying in seeking at home and abroad for further contributions to the reviving institution. Being a corresponding member of the Spanish Academy, he interested the potent directors of that society in his exertion, and soon by every steamer arriving at Callao came valuable contingents of books and publications generously taken from the stores of the foreign libraries and destined for their unfortunate sister. The Governments of France and of the United States were liberal in their gifts. On the shelves of the library are many of the official publications from Washington with superb maps and charts, which were most gratefully accepted. Chili was appealed to to restore her wrongly acquired spoil, but the request was not heartily responded to. Still by dint of great exertions, and with the basis of the 12,000 volumes, the former property of the institution, Señor Palma was enabled to formally open the library eight months after the commencement of his labors in July, 1884, with 27,894 volumes all of which had been generously donated or willingly restored. Now, the number of books reaches 33,000, or more than half of that it possessed when the enemy took armed occupation of its peaceful halls.

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BONDED WAREHOUSES IN CHINA.

GENERAL REGULATIONS FOR BONDING.

The Commissioner of Customs sent us yesterday the following regulations, which come in operation on the 1st of January.

The Chinese Government having assented in the Revised German Treaty to the experimental establishment of bonded warehouses at Shanghai, the following provisional regulations have been drawn up. They are divided into four sections, according as they effect—1°, vessels; 2°, cargo; 3°, the custom house; 4°, the bonded warehouse,

1°.—*Rules for the Guidance of German Vessels.*

1. After arrival and consular report, the import manifests of German vessels are to be lodged with the customs.

2. When the consul's report has been received, the manifest handed in, and permits to land applied for and issued, the vessel will be allowed to discharge.

3. When import cargo has been discharged, export cargo shipped, and dues and duties paid, the customs clearance will be issued. The customs will enter on the clearance the amount of import duties paid on foreign goods and the number of packages of foreign goods bonded upon which duty has not been paid.

4. The rules regarding export duties, coast trade duties, and tonnage dues remain as before.

2°.—*Rules for the Guidance of Importers.*

5. A distinction is made between a vessel's import foreign cargo and her native cargo. While foreign goods may be bonded or not, at the importer's option, native goods will be treated as before—*i. e.*, released upon payment of duty—and will not be allowed to be placed in bond.

6. Foreign goods may, at the importer's option, be either treated as before—*i. e.*, pay duty and be released—or may be bonded. The importer must state on his import application—in addition to the description, number of packages, weight, and value of the goods—on which goods he wishes to pay duty and on which he wishes to defer payment, in order that the customs may know whether to issue a duty memo. or a bonding permit.

Local Rule 1. An application for general discharge permit will be held to be an application for importation on payment of duty.

7. The importer must in all cases obtain a bonding permit before landing his cargo and placing it in bond.

Local Rule 1. Goods for which a bonding permit is issued must be taken direct to the bonded warehouse.

8. If the importer wishes to take samples of goods placed in bond, he must first obtain a sample permit from the customs before opening the packages. The bonded warehouse keeper will, upon production of this sample permit, allow the packages to be opened and samples taken, and the original packages will then be closed in whatever way the importer and warehouse keeper may agree upon.

9. When the importer wishes his goods, or any portion of them, to be released from bond, he must supply the customs with a description of the goods, number of packages, weight, value, date of bonding, name of importing vessel, destination, name of exporting vessel, etc., when applying for duty memo., release permit, or shipping permit. Goods for sale in Shanghai, or for re-export to a Yangtze Port, must pay import duty before being released from bond. If intended for re-exportation to other treaty ports, or to a foreign port, they will not be required to pay duty before quitting bond.

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Local Rule 1. Goods for which a permit to ship in bond (non-duty paid) or a permit to withdraw from bond for shipment is issued must, in case of failure of shipment, be taken direct to the customs jetty for examination; application to withdraw from bond for import must then be made for such shut-out cargo.

10. Goods removed from the bonded warehouse without a permit will be confiscated, and the proprietors of the bonded warehouse will be responsible for the amount of the duty leviable.

11. Twelve months are proposed as the limit during which goods may remain in bond. If not applied for by the importer at the expiration of that period, the proprietors of the bonded warehouse must pay the import duty and remove the goods elsewhere.

12. The insurance of bonded goods, warehouse charges, and indemnity for fire or loss, are matters to be arranged between the proprietors of the bonded warehouse and the importers, and do not concern the customs.

3°.—*Regulations to be Given Effect to by the Customs.*

13. Seeing that German vessels will arrive with cargo which is, and with cargo which is not, to be bonded, the customs must first receive the consular report and import manifest before issuing permits to discharge, etc.

14. On application from the importer to bond foreign goods, the customs will issue the bonding permit with the permit to land.

15. On application from the importer, the customs will issue a sample permit to open packages in bond for the purpose of taking samples.

16. When the importer desires to dispose of bonded goods in Shanghai, or to re-export them to a Yangtze Port, the customs will, upon application, issue a duty memo., and upon production of the receipt will grant a release permit, and, if required, a Yangtze export permit.

17. Upon application from the importer to re-export bonded goods to a treaty port, other than a Yangtze port, or to a foreign port, the customs will issue a release permit and an export permit.

18. The customs will enter on the clearance of each German vessel the amount of import duty paid, and the number of packages placed in bond on which payment of duty is deferred.

19. The form of bond to be entered into by the proprietors of the bonded warehouse, the books to be kept there, the arrangements for either permanently stationing customs officers at the warehouse or for periodical inspection, as well as the rule for the daily routine of work at the warehouse, will be decided by the Shanghai customs as circumstances require.

20. In the quarterly returns of revenue the duty paid on goods released from bond is to be entered in the return for the current quarter; and in the annual trade returns such goods are to be entered under their proper flag. Goods remaining in bond are to be treated, as regards these returns, as yet not imported.

4°.—*Rules to be Observed by the Proprietors of Bonded Warehouses.*

21. The proprietors of warehouses appointed by the Shanghai customs to store goods in bond must enter into bonds in which they bind themselves to observe all the regulations of the Shanghai customs, and engage that no goods shall enter the warehouse without a permit, and that, once in the warehouse, goods shall not be opened or released without the proper permit; and in the event of goods being so opened or released without permit, the said proprietors bind themselves to pay a fine of so many times the duty leviable on the goods concerned.

Local Rule 1. Bonded warehouses shall be exclusively reserved for the storage of bonded goods.

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Local Rule 2. Warehouses now authorized by the Shanghai customs to store goods in bond are as follows, viz:

Warehouse No. 14 at the China Merchants' Steam Navigation Company's lower Hongkew wharf, for the storage of bonded cargo *ex* vessels moored at that wharf, and where arrangements will be made for the reception, landing, and storage of bonded goods, water-borne, from vessels not moored at that wharf.

The bonding of other warehouses will be made known to the public by a notification displayed at the custom house.

Local Rule 3. Each door of every bonded warehouse shall be marked in conspicuous letters with the word "bonded;" and each such door will be provided by the customs, but at the expense of the warehouse proprietor, with a second lock, the key of which shall remain in the hands of the customs officers.

22. The proprietors of bonded warehouses must keep books, the form of which will be determined by the customs, in which must be recorded particulars of all goods which enter and leave the warehouse, as well as full particulars of the opening of packages for the purposes of taking samples.

23. Custom officers, whether permanently stationed at the warehouse or coming for the purpose of inspection, shall at all times have access to, and be at liberty to examine, both books and cargo without hindrance on the part of the proprietors of the bonded warehouse.

24. Goods for which the importer has obtained a bonded permit will be checked on arrival at the bonded warehouse by the warehouse keeper in the presence of the customs officer before being stored. At the same time an entry will be made in the warehouse book, and the bonding permit will then be receipted and handed to the customs officer to be filed.

25. On the presentation by the importer of a sample permit to take samples, the bonded warehouse keeper must inform the customs officer, in order that both may be present when the packages are opened and the samples extracted. On the packages being re-closed, the warehouse keeper must make a full entry in the book kept for the purpose, and then hand the sample permit to the customs officer to be filed.

26. When the importer brings to the bonded warehouse a release permit for goods to be disposed of in Shanghai or re-exported to a Yangtze port, it will be the duty of the warehouse keeper to inform the custom officer, in order that both may personally see to the release of the goods. The warehouse keeper must at the same time enter the particulars in the prescribed duty-paid book, and then hand the release permit to the customs officer to be filed.

27. When the importer brings to the bonded warehouse a release permit for goods to be re-exported to a treaty port other than a Yangtze port, or to a foreign port, it will be the duty of the warehouse keeper to inform the customs officer, in order that both may personally see to the release of the goods. The warehouse keeper must at the same time enter the particulars in the prescribed re-export book, and then hand the release permit to the customs officer to be filed.

28. Twelve months is proposed as the limit during which goods may remain in bond. At the expiration of that period, if the importer has not applied for his goods, the proprietors of the bonded warehouse must pay the import duty and remove them elsewhere.

29. The storage and custody of goods in the bonded warehouse, warehouse charges, insurance, etc., are declared to be private matters to be arranged by the proprietors of the bonded warehouse, and do not concern the customs. The customs, however, are to be kept informed of the warehouse rules.

The above regulations are provisional and subject to alteration, or cancellation, as the Shanghai customs may from time to time decide to be necessary. The four main divisions, however, are to be maintained.

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IMPORTS OF KEROSENE INTO INDIA.

Imports of kerosene to British India for ten months ended January 31, 1888: From United States 21,554,536 gallons, valued at $2,742,862; from Russia in Asia 2,857,269 gallons, valued at $406,517; from other countries 122,696 gallons, valued at $24,996. In view of the interest that now exists in Russian competition in the mineral oil trade of India, I thought the foregoing additional facts would be of value to American exporters of kerosene. If the values of American and Russian oils respectively, as above stated, are correctly given in the Government report from which I compile them, they show the important fact that Russian oil laid down in India costs over 14 cents per gallon, while American oil costs less than 13 cents; and yet the Russian article is admittedly inferior in quality and sells for materially less in this market than good American oil. — CALCUTTA, *March 10, 1888.*

B. F. BONHAM,
Consul-General.

URUGUAYAN WOOL.

Uruguayan wool is quoted in the markets of the world as of the very highest and finest class. Indeed, it is said here, that the sheep farmers of New Zealand and Australia, as also the finest Lincoln and merino shearers who visit Montevideo, admit that they are not able to produce such superior qualities of wool, especially at such small cost and in such abundance.

It is also said that these fine classes are the sorts especially demanded in the United States, and hence a large increase in the wool trade is anticipated.

The fact that Uruguayan wool is so fine is still more remarkable when it is considered that Argentine wool, produced just across the river, is unusually coarse and dirty. — MONTEVIDEO, *March 12, 1888.*

JOHN E. BACON,
Consul.

THE WORKING CLASSES OF BARMEN.

According to the latest census the population of the town of Barmen, which, next to Aix-la-Chapelle and Munich-Gladbach, employs the largest number of work people in the Rhineland and Westphalia, amounts to 109,000, of which 17,000 belong to the working classes. These work people are mainly engaged in textile factories and dye works, the smaller proportion in belt-twisting establishments, hard-yarn, button, and machine factories. The textile workers, constituting the large majority, have this advantage over all other workers in the Rhine provinces and Westphalia — they receive the highest wages. According to the tables of the Statistical Wage Report for the last quarter of 1887, the worker in Barmen receives an average wage of 195 marks per quarter year, against 130 marks in Münster (Westphalia), 156 marks in Munich-Gladbach, and 139 marks in Aix-la-Chapelle. This rate is high, inasmuch as nearly half of the workers in Barmen are of the feminine sex, and receive less wages than the men, whose capacity for work is naturally

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greater. Moreover, in many factories piece work is given to the operatives, so that, if capable and industrious, he has the opportunity of earning from 30 to 35 marks per week. It cannot be wondered at, therefore, that complete contentment prevails among the working classes of Barmen, and this contentment is still further heightened by the excellent relations existing between employers and employés. An extensive number of benevolent institutions, both public and private, prove how profoundly the employer has the well being of his working people at heart. There are in Barmen from forty to fifty factory invalid, saving, and annuity funds, the management of which is most carefully and generously conducted by manufacturers themselves, in union with their employés. These are quite apart from the insurance institutions required by law, in connection with which all concerned, workers included, vie with each other in fulfilling in the most friendly and efficient manner the duties required of them. The administration of the poor relief funds, the hospitals, orphanages, and homes for the aged is quite exemplary in Barmen.

The improvement in the condition of the building society, which had made remarkable progress in the previous year, was maintained in 1887. The demand for dwellings by the working people was highly satisfactory, and neither on the 1st of May nor on the 1st of November were there any unlet. The house seekers confined themselves, indeed, to hiring their dwellings, and no increase took place in the number of houses which were open for sale. Nevertheless the building society was enabled to substitute better lodgers for those who did not give entire satisfaction, the consequence being that would-be lodgers presented themselves in fairly large numbers. The number of working people's dwellings to be found in Barmen during the past year amounted to 180, against 157 at the close of the year 1886.

In the 16 schools for little children spread over the town the workingman is given an opportunity of securing a safe home for his children during his hours of labor. The warm interest which is taken in these institutions by the Barmen middle class, as well as the number of scholars in attendance, which last year amounted to nearly 2,400, are proofs of the great success which has attended this system of schools for little children for a considerable length of time. The Mutual Benefit Association, for the welfare of the community, and a number of other societies constantly direct their endeavors to an improvement of the condition of the working population, while several private institutions of some importance have the same object in view. It is clear that nowhere can the relations between employer and employed be of a more humane or peaceful character than in the Wupper Valley. This fact finds additional proof in the hearty and unsophistical expressions of sympathy which any joyous or sad event in the family life of the employer is certain to call forth. The Barmen manufacturer and man of business is known for his highly developed sense of justice and humanity—characteristics which are seen in the numerous cases in which aged workers, incapable of further effort, continue to draw their full wages until their death—sometimes for a score or

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years—without any claims other than those of their helplessness and poverty. The lengthy periods during which the worker remains in the service of one master prove that the former is also capable of recognizing and respecting the endeavors of his employer.

The following table shows the length of time during which the Barmen worker remains in the same employment in some of the largest branches of local industry.

Factory.	Length of service.											
	Less than 3 years.	Between 3 and 5.	Between 5 and 10.	Between 10 and 15.	Between 15 and 20.	Between 20 and 25.	Between 25 and 30.	Between 30 and 35.	Between 35 and 40.	Between 40 and 45.	Between 45 and 50.	Over 50.
Ribbons, lace, and trimmings.												
In one factory ..... Males	.....	46	16	21	17	9	2	.....	.....	.....	.....	.....
In one factory ..... Females	.....	39	24	1	2	3	2	.....	.....	.....	.....	.....
In a second ..... Males	.....	10	6	.....	4	.....	.....	1	.....	.....	.....	.....
In a second ..... Females	.....	15	10	.....	3	.....	.....	.....	.....	1	.....	.....
In a third ..... Males	.....	44	20	6	8	4	1	1	.....	.....	.....	.....
In a third ..... Females	.....	44	14	5	3	.....	1	.....	.....	.....	.....	.....
In a fourth (established 187 years) ..... Males	.....	170	40	17	.....	.....	.....	.....	.....	.....	.....	.....
In a fourth (established 187 years) ..... Females	.....	110	10	3	.....	.....	.....	.....	.....	.....	.....	.....
In a fifth ..... Males	110	26	14	8	3	4	.....	.....	.....	.....	.....	.....
In a sixth ..... Males	10	8	20	28	5	7	.....	3	2	1	2	.....
In a sixth ..... Females	21	17	10	4	.....	.....	.....	.....	.....	.....	1	.....
In a belt-twisting establishment.												
In one establishment ..... Males	.....	122	12	10	6	3	2	.....	.....	.....	.....	.....
In one establishment ..... Females	.....	47	19	8	1	.....	.....	.....	.....	.....	.....	.....
Elastic India-rubber goods.												
In one factory ..... Males	.....	56	16	13	13	6	.....	.....	.....	.....	.....	.....
In one factory ..... Females	.....	28	8	2	5	.....	.....	.....	.....	.....	.....	.....
In a second ..... Males	.....	68	15	19	14	11	.....	.....	.....	.....	.....	.....
In a power weaving establishment.												
In one factory ..... Males	26	4	16	17	7	6	1	1	.....	.....	.....	....
In one factory ..... Females	104	20	18	8	2	.....	.....	.....	.....	.....	.....	.....
Hand-yarn factories.												
In one factory ..... Males	80	20	19	25	17	18	7	9	1	.....	.....	1
In one factory ..... Females	103	39	31	14	18	4	3	6	1	.....	.....	2
In a second ..... Males	.....	15	14	16	7	6	.....	3	.....	.....	.....	.....
In a second ..... Females	.....	26	12	11	5	.....	.....	.....	.....	.....	.....	.....
In a third ..... Males	17	17	8	4	1	1	.....	.....	.....	.....	.....	.....
Button factories.												
In one factory ..... Males	.....	105	16	17	15	16	.....	.....	.....	.....	.....	.....
In a second ..... Males	18	6	23	13	8	.....	.....	.....	.....	.....	.....	.....
In a third ..... Males	.....	7	2	2	1	5	4	6	.....	3	.....	1
In a third ..... Females	.....	2	1	1	1	1	.....	1	.....	1	.....	.....
In a fourth ..... Males	.....	130	50	12	8	.....	.....	.....	.....	.....	.....	.....
In a machine factory.												
In one factory ..... Males	.....	78	12	4	2	1	.....	9	.....	.....	.....	.....
In a second ..... Males	.....	59	29	3	8	4	1	.....	.....	.....	.....	.....
In a piece dye works.												
In one establishment ..... Males	.....	194	34	30	11	9	2	.....	.....	.....	.....	.....

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A Turkish-red yarn factory is found to have employed about thirty workers over five years, and several for more than thirty years.

It is seen from the above table that a large number of work people are employed for scores of years in factories of all branches, even of those which are most subject to the changes of fashion. This fact is all the more worthy of attention, inasmuch as the great changes of fashion, to which the industries of Barmen are peculiarly liable, actually entail a similar revolution in the occupations of the work people, and in the rate of their wages.

A very important indication of the general happiness of the working classes in Barmen may be detected in the report of the litigation which has taken place before the bar of the local commercial courts of justice. The number of cases which came up for trial was 419, which were distributed among the following branches of industry:

Ribbon manufacturers against master workers of house industry (belt twisters and master ribbon makers)	12
The latter against the former	13
Manufacturers, merchants, etc., against factory workers, etc., (ribbon makers, belt twisters, dye finishers)	67
The latter against the former	145
Hand workers against journeymen and assistants	13
The latter against the former	165
Master hand workers against apprentices	1
The latter against the former	3
Total	419

Of these the disputed points at issue were:

Illegal desertion from work	70
Illegal dismissal from work	129
Non payment of wages	140
Non-return of advance and non-payment of compensation	7
Departure from terms of working contract	29
Departure from terms of wages contract	2
Non-payment of wages, and compensation for wrongful dismissal	17
Non-payment of contribution to invalid fund	3
Circulation of libels in the filling of a workman's certificate	15
Compensation for goods spoiled by work people	2
Protested cases	5
Total	419

The above figures show in the clearest possible manner that in Barmen the smallest amount of litigation takes place in proportion to the extent of the working population. When, moreover, factory industry is alone considered and the differences which arise among hand workers themselves are left out of account, the results are even more favorable than they at first appear. Only 237 law suits fall to the share of the entire number of factory hands (over 20,000), than which a more satisfactory result could hardly be possible. Of course, there are certain exceptions, but on the whole the Barmen worker is credited with the qualities of skillfulness, sobriety, and industry, and although in his political opinions he is largely inclined to social democracy, the reason of this is principally to be found in the deep-seated differences which exist between labor and wages. Hatred or malice toward his employer are feelings totally unknown to the Barmen worker. His views result from a belief that social democracy constitutes a more powerful force for the improvement of his social position than anything else. Another reason why the great majority of the Barmen operatives belong to the above mentioned political party is that in Barmen, compared with other German towns, the most operatives are employed. It must be remembered that in the textile industry in Barmen alone there are over 700 factories in about thirty branches

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of industry, which give occupation to more than 16,000 work people. This estimate is entirely apart from house industry and all other branches, in which, unfortunately, no accurate statistics can be obtained.

It is in consequence of the universally excellent and friendly tone which characterizes the behavior of employers to employed, and *vice versa*, the first-rate wages, and conditions of living, etc., that the fixed conclusion may be come to that the situation of the laboring population in Barmen is the most satisfactory and the best in the whole of the Rhineland and Westphalia. — BARMEN, *March 15, 1888.*

JOSEPH FALKENBACH,
Consul.

PROPOSED CHINESE CONSULAR SERVICE.

I have the honor to forward herewith for your information a copy of a memorial* presented by the governor-general of the two Kuang provinces to the Emperor, concerning the establishment of consulates in the British, Dutch and Spanish colonies.

In 1886, at the recommendation of the governor-general, a commission had been sent by the Chinese Government to enquire into the condition of the Chinese residing in the colonies of Great Britain, the Netherlands and Spain in the Pacific and Indian oceans. In the enclosed memorial the results of this investigation are given. They may be summarized as follows:

In Manila there are over 50,000 Chinese carrying on a most thriving business, notwithstanding the animosity of the Spaniards and the impossibility for Chinese to obtain justice, the civil and military authorities conniving at the guilt of the criminals. The most extortionate taxes are moreover levied upon them, and on the Chinese having prepared a petition to be forwarded to the Spanish Government, the people united to have the whole Chinese population expelled from the island, and only desisted on the arrival of the Chinese commission.

At Singapore there are 150,000 Chinese who own four-fifths of all the real estate — exclusive of government property — in the island. At Malacca, Penang, Perak and Selangor there are large and wealthy Chinese settlements, and while the commission does not mention any vexatious measures or discrimination against the Chinese in these localities, still it appears that many deceptions are practiced by the coolie agencies on the laborers brought from or being sent back to China from these places.

In Java the condition of the Chinese was found to be distressing. Over 200,000 Chinese are living in the Dutch Indies, employers may maltreat them with impunity, excessive taxes are levied upon them, gambling is everywhere allowed among them, and many Chinese, it is stated, are forced to become naturalized as Dutch subjects. At Batavia, especially, does the lot of the Chinese appear to be hard.

* The memorial is not published.

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In Australia the commission found a large Chinese population, which tends to increase continually, notwithstanding the heavy poll-tax on all new arrivals, ranging from £10 to as high as £30.

The memorialist recommends that the Spanish Government be urged to authorize the establishment of a consulate-general at Manila, to which measure it has, until now, objected. The Chinese merchants of Manila are both willing and able to support a consular officer. "The first year only will it be necessary for the Government to advance any funds, and this will be repaid at the end of the year out of the fees collected. From the second year on no demand need be made on the national funds, but all the working expenses of the consulate, including the salaries of the officers, will be defrayed out of the fees."

He also recommended to establish a college at Manila, of which the consul-general shall be president, the funds of the same to be subscribed by the merchants, where the young Chinese may receive a national education. At Singapore it is desirable that the Chinese consul should have authority to act with the registrar-general for the prevention of the irregularities complained of.

At Rangoon it is desirable to establish a consulate, among the duties of which is mentioned the "regulation of frontier matters." Batavia is regarded as second in importance to Manila alone, and should, like the latter place, have a consul-general, and additional consulates may be established later on as that officer may judge expedient. The governor-general further recommends the establishment of a consulate-general for Australia at Sidney, as has been done by the United States Government. As to consular officers in the other localities in Australia and New Zealand, they may be taken from among the resident Chinese merchants without incurring any further expense.

The fees, by which it is expected to derive funds for the maintenance of the proposed consulates, are to come from registration, shipping, etc., "but should these prove inadequate to meet the expenses, the memorialist will raise the deficit by subscription among the merchants, upon whom official titles will be bestowed."

The foregoing document presents a number of features of great interest. Besides throwing light on the condition of the Chinese in foreign countries, and emphasizing their generally prosperous condition, notwithstanding the great disadvantages under which they labor, it furnishes us, incidentally, with a further proof of the unfitness, or dislike, of the present system of Government to adapt itself to the new condition of things brought about by the closer relations in which China has entered with foreign countries.

The minister-superintendent of northern trade, resident at Tientsin, exercises superintendence over the consulates in Korea and Japan, and has them practically under his sole control; the salaries of these consular officers, the fees leviable by them, the regulations governing their actions are fixed by him—probably with the sanction of the throne. The new

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consulates which the foregoing memorial contemplates, will be under the general supervision of the viceroy at Canton or the superintendent of southern trade, and he will exercise the same authority as his northern colleague in fixing regulations, salaries, etc., without being in anywise obliged to adopt those which he has fixed upon for the consulates under his supervision. —PEKING, *March 1888, 1.*

CHARLES DENBY.

THE WOOLEN INDUSTRIES OF BELGIUM.

The following table shows the movement of woolen thread and fabrics between Belgium and foreign countries for the month of December and the entire year of 1887:

	Importation.			Exportation.		
	1887.	1886.	1885.	1887.	1886.	1885.
	Francs.	*Francs.*	*Francs.*	*Kilograms.*	*Kilograms.*	*Kilog'ms.*
WOOLEN THREAD.						
December	68,380	67,420	70,090	1,363,150	1,638,210	879,090
Whole year	849.800	852,950	980,680	11,464,040	11,224,940	9,380,390
WOOLEN TISSUES.						
December	145,380	214,570	212,470	174,450	133,800	196,150
Whole year	2,842,360	3,365,620	3,002,930	1,436,020	1,370,400	1,439,940
HEAVY TISSUES.						
December	129,400	91,670	139,580	39,680	29,620	21,780
Whole year	1,686,920	1,748,370	1,901,580	227,730	255,420	214,410
LIGHT TISSUES.						
December	1,042,900	886,050	782,380	49,180	32,140	89,720
Whole year	15,851,060	15,022,760	17,043,450	502,470	464,700	895,900

The foregoing table suggests the following considerations:

Woolen yarn. —The amount of importations during 1887 did not vary much from the amount imported in 1886, the importations for 1886 being 852,950 kilograms, and for 1887, 849,800 kilograms. There was also no great difference in the proportions the different countries furnished, as is shown by the following table:

Country.	1887.	1886.	1885.
	Kilograms.	*Kilograms.*	*Kilograms.*
Germany	61,010	61,840	20,950
England	156,170	180,440	195,640
France	621,590	601,280	753,430
Other countries	11,030	9,395	10,660
Total	849,800	852,950	980,680

France makes up for a part of the importations of England, which, however, are not very important, as they consist only in a special kind of yarn

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and combed wool thread, which is less expensive when purchased in France than at the home mills. It is not for its quality they purchase it abroad, for the manufacturers succeed in exporting part of their production; it is only a question of the kind, or of the price, which causes the manufacturers of Brabant and of Flanders, as well as those of Verviers, to make purchases abroad.

On the 849,900 kilograms imported in 1887 the customs received a duty of 222,033 francs. This duty weighs heavily on the manufacturers, especially as the competition in the foreign markets is growing more and more difficult. So say the manufacturers, and they demand *free trade*.

Exportation increased, yet nevertheless the year 1887 was one of the worst ever experienced by the wool spinners. Prices declined from the month of January to the month of December. As the consumers made use of the stocks they had accumulated in 1886, and purchased only for necessary wants, the spinners were obliged to restrain their production as much as possible. A great number of them ceased working at night, or worked only on certain days of the week, or reduced the number of hours of work. Hence a sensible reduction in the exportations was expected, and the contrary happens! How explain it?

The following table shows the exportations to the different countries:

Country.	1887.	1886.	1885.
	Kilograms.	*Kilograms.*	*Kilograms.*
Germany and Austria	3,487,620	2,928,640	2,922,740
England	7,488,680	7,460,500	5,416,580
France	219,220	527,170	555,920
Other countries	268,520	308,630	484,150
Total	11,469,040	11,224,940	9,379,390

The importations from Germany and Austria during 1887 were augmented 558,980 kilograms over those for 1886, and the importations from England only 28,180 kilograms. The imports from France show considerable diminution—from 527,170 kilograms in 1886 to 219,220 in 1887. There are two reasons for this result: First, the limited use of carded wool thread compared with the combed wool thread, (only an effect of fashion); and secondly, the extension of wool carding mills, especially in the north, a consequence of the heavy duties with which the foreign yarns are charged.

Woolen stuffs.—In the importation of cloths, cassimeres, and similars there is a reduction of 523,000 francs on an amount of 3,365,000 francs for 1886, which year bore the highest figures for a long series of years. In this diminution Germany loses 26,000 francs, France 43,000 francs, and England more than 400,000 francs. There is also a decline in the figures in the importations of *heavy tissues*. In 1885 the imports amounted to 1,901,580 francs, in 1886 1,748,370 francs, and in 1887 1,686,920 francs.

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The following table shows the exportation of cloth and similar goods to the countries named:

Country.	1887.	1886.	1885.
	Kilograms.	*Kilograms.*	*Kilograms.*
Germany	76,600	81,490	99,200
England	162,400	152,800	113,300
Brazil	32,500	49,600	78,200
United States	88,600	150,400	78,800
France	518,200	488,900	495,300
Netherlands	161,000	142,000	140,890
La Plata	124,600	85,400	109,800
Switzerland	76,000	58,500	81,500
Other countries	196,000	178,400	242,900

The following table shows the exportation of light tissues to the countries named:

Country.	1887.	1886.	1885.
	Kilograms.	*Kilograms.*	*Kilograms.*
Germany	23,150	12,470	11,090
England	40,780	21,390	19,250
Congo	20,320	.....	.....
France	130,730	162,680	172,120
Hamburg	7,710	5,080	18,220
Italy	42,690	36,330	26,990
Netherlands	81,090	147,430	544,450
La Plata	34,140	21,740	18,860
Switzerland	12,300	15,240	14,070
Other countries	109,570	42,340	70,840

LIÉGE, *March 3, 1888.*

WM. S. PRESTON,
Consul.

UNION SUGAR BOILING WORKS.

From published information of the procedings at the annual general meeting of the St. Croix Sugar Boiling Factory, held in this city at the close of last year, it would appear that the factory had received in the course of the year a fairly liberal supply of sugar cane, having been delivered about 92,250,000 pounds of cane. The works commenced on the 12th February and continued until the 2d July without any intermission. On an average about 1,000,000 pounds of cané were daily worked up, and the total product 40,200 bags or about 8,200,000 pounds of sugar.

Prices during the year have ruled very low, lower than in any previous year; and as the chief part of the factory's production had been disposed of some time back, the rise which has taken place in the last months has not yielded any profit to the company. In all probability there will be found a

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surplus of about 100,000 kroners,* which will not be sufficient to cover the interest and 5 per cent. redemption of loan due to the Government. The losses for 1886 were 106,010 kroners, to which has to be added the unpaid interest and 5 per cent. due to the Government, making a total deficit of 252,499 kroners.

At the previous annual meeting it was specially brought to the notice of the shareholders that the ten years which contracts had been made with the sugar planters for the deliveries of cane, would expire at the close of the working year, and on application to the planters for a renewal of these contracts it was found that reliance could only be placed upon little more than half of the quantity required to keep the factory at full work. The directors lost no time in informing the Ministry of Finance that under these circumstances they would not be in a position to carry on these works, unless assistance was granted by the Treasury. The minister replied that he was entirely without authority to promise aid, and negotiations were subsequently entered upon for taking over the works by the Government. After a somewhat lengthened correspondence an offer was made to the Minister, that as full compensation for the dissolution of the company and the taking over of its works and rights by the Government, (subject, however, to the necessary grants being accorded by the chambers,) all of the outstanding coupons for the ten years ending with the working year of 1886–89, should be redeemed by the Government at the rate of 60 per cent. of the amount guaranteed by the Colonial Treasury, which would correspond with the amount offered in first instance by the Minister, viz: of 30 per cent. of the company's capital stock. — COPENHAGEN, *February 9, 1888.*

HENRY B. RYDER,
Consul.

PRISON STATISTICS OF DENMARK.

In the Ministerial Gazette there has lately been given some statistical matter relating to convict prisons, embracing a period of 25 years, from 1861 to 1885.

In Denmark there are at the present time but three convict establishments in which penal labor is enforced —

1. One at Christianshaven, capable of receiving 400 prisoners, which is exclusively set apart for female criminals, whether they may be sentenced to penal or corrective labor.

2. One at Vridslöselille, which can contain 400 prisoners, and wherein are confined all male criminals sentenced to house of correction labor, with the following exceptions, viz: (*a*) When they are above the age of sixty years; (*b*) when they have been previously sentenced to the punishment of hard labor, and are above the age of thirty years; (*c*) when their state of health is such that they may be considered unfit to perform the daily labor

* A krone is equal to about 27 cents American currency.

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without aid, or of supporting strict isolation or of taking part in the ordinary course of instruction.

3. One at Horseus, having room for 500 prisoners, and which receives all male criminals condemned to penal servitude, as also all male criminals sentenced to house of correction, who are not confined in the Vridslöselille establishment.

In the Danish convict prisons there is thus room for 1,300 prisoners in all. At the commencement of the period in question the number of prisoners was greatly in excess of these figures, in respect to which it should be remarked that by degrees, as the number of prisoners decreased, consequent upon the more lenient principles introduced under the new penal law of February 10, 1866, the number of prisons was reduced. One convict establishment in Copenhagen for 300 prisoners was abolished in 1871; and another in Viborg for 400 prisoners in 1875; a penal establishment in Odense capable of rooming 100 prisoners was closed in 1865.

The total number of prisoners at the beginning of the period in 1861 was 1,694, while at the close of the period in 1885 it was only 805, a decrease of about 52 per cent. This must not be taken as the result of diminution of crime in Denmark, but rather of the more lenient provisions of the penal law and the shorter terms of imprisonment for different classes of crime under the new penal law. The aggregate admission of new prisoners during the entire period has been 14,252, of which 11,201 were male and 3,051 females, distributed in periods as follows: In 1861–'65, with 19.96 per cent.; 1866–'70, with 20.64 per cent.; 1871– 75, with 17.48 per cent.; 1876–'80, with 20.33 per cent.; 1881–85, with 21.59 per cent. While the increase in the first two and the last two periods has been pretty equal, that in the period of great commercial prosperity, 1871–'75, is seen to have been strikingly small.

The number of prisoners discharged during the same period has been 15,141, of which 11,944 were males and 3,197 females; the decrease in the several periods having been distributed as follows: In 1861–'65, with 18.92 per cent.; 1866–'70, with 22.56 per cent.; 1871–'75, with 19.27 per cent.; 1876–'80, with 18.79 per cent.; 1881–'85, with 20.46 per cent. The high percentage for 1866–'70 may be attributed in an indirect manner to the new penal law. This large release of prisoners being due to the large number of pardons granted in this period, inasmuch as the administrative authorities were desirous of extending the benefit of the new penal regulations to prisoners sentenced under the older and more severe law in all cases where their conduct in prison had been of a satisfactory character. The total number of pardons during the entire period were 1,027, half of which fell upon the five-year period of 1866–'70. During the entire period 560 deaths occurred among the prisoners, 26 being suicides. It would appear, however, that in the last two periods, 1876–'80 and 1881–'85, the death rate has tended to decrease owing in part to the shorter term of confinement, and in part to different sanitary improvements, as well as to the introduction of a more liberal prison diet. Among the crimes which have led to confine-

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ment in these penal prisons, that of theft is by far the most common, the cases of gross and simple theft constituting 70.23 per cent. of the whole list. When to this is added other offenses against property, such as receiving stolen articles, fraud, coining and forgery, they will together be found to amount to no less than 82.09 per cent. of the crime list. Incendiarism is credited with 5.24 per cent.; offences against public decency with 5.12 per cent.; crimes against the person, such as homicide, infanticide, criminal abortion, concealment of childbirth with 5.76 per cent. Of male prisoners 46.36 per cent. were sentenced for simple theft, and 26.05 per cent. for theft accompanied by violence; while of the female prisoners 56.21 per cent. for simple theft, and 9.64 per cent. for theft with violence; 11.41 per cent, of female prisoners are found to have been sentenced for acts of infanticide and concealment of childbirth.

The fluctuations which have taken place during the entire period in the various criminal offenses are not without interest. While the number of prisoners who had committed offenses against public authority in the first twenty years of the period only amounted in all to 38, during the last five years they have amounted to no less than 50. The number of prisoners convicted for perjury in the period of the last five years has been very small, only 10; while in the first twenty years there were sentenced no less than 103.

Offenses against good morals would appear to have considerably increased in that in 1861–'65 73 were imprisoned; in 1866–'70 127 were imprisoned; 1871–'75, 134; 1876–'80, 189; 1881–'85, 210, and it is specially crimes of rape and incest that have led to this increase. The crimes of infanticide, criminal abortion and concealment of childbirth have also been on the increase, as will be seen by the following table of sentences for such offenses, viz: In 1861–'65, 51; 1866–'70, 75; 1871–'75, 75; 1876–'80, 102; 1881–'85, 102.

For crimes of homicide and acts of violence against the person the numbers given are as follows, viz:

	Homicide.	Acts of violence.
In 1861–'65	33	45
In 1866–70'	60	34
In 1871–'75	34	34
In 1876–'80	34	49
In 1881–'85	37	53

And for theft—

	With violence.	Simple theft.
In 1861–'65	396	1,712
In 1866–'70	680	1,378
In 1871–'75	574	1,202
In 1876–'80	775	1,249
In 1881–'85	787	1,255

And, finally, for acts of incendiarism: In 1861–'65, 139; 1867–'70, 177; 1871–'75, 123; 1876–'80, 131; 1881–'85, 174. The greater increase to be seen in the five years of 1866–'70 and 1881–'85 is chiefly attributed to an

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epidemic rage of incendiarism which showed itself in the Copenhagen district during the second period, and in the Veite district in the fifth period.

As regards the term of punishment there is shown by the statistical tables, as might be expected, a marked difference between the first five years on the one hand, when the older penal statutes were in use, and the following twenty years when the new penal law came into force. In the first-named period the average term of punishment of a prisoner was of 4.20 years, while in the last twenty years it has been of 2.04 years, the average term having thus been reduced by 52 per cent.

A research into the ages of the condemned prisoners shows a somewhat remarkable result, the following table denoting how many of each sex in the various stages take their share of every 100 prisoners:

	Male prisoners.	Female prisoners.
Below 15 years	63.64	36.30
From 15–20 years	81.01	17.99
From 20–25 years	80.82	19.18
From 25–30 years	79.92	20.08
From 30–40 years	77.90	22.10
From 40–50 years	75.36	24.64
From 50–60 years	75.02	24.98
Above 60 years	81.23	18.77

Discarding the periods of life under fifteen years and above sixty years, in which the numbers are relatively so small that they have but slight importance in a statistical point of view, the relative proportions at the different stages of the two sexes may be designated as follows: For male prisoners, the lower the age the greater the number; and for female prisoners, the greater the age the greater the number, while the period of life of 15–20 years is seen to give 4.56 male to 1 female prisoner. This proportion is seen to change regularly and step by step until with the period of life at 50–60 there are only to be found three males to one female prisoner. As regards the peisoner's seat of residence, the statistics point, as might be expected, to the very unfavorable position held by the capital, inasmuch as the ratio between the prisoners and the rest of the population in the 25-year period has been as follows: For Copenhagen, 1 to 63; for the provincial towns, 1 to 128; for the rural districts, 1 to 202; for the entire kingdom, 1 to 150.

When investigating the occupations of the prisoners, it is seen that the day laborers have contributed most largely to the male prisoners (37.20 per cent.); thereafter the various classes of artisans (24.50 per cent.), and next the class of men servants with 21.36 per cent. With respect to the female prisoners, nearly one-half thereof (43.66 per cent.) are to be found in the class of domestic servants. Among the class of craftsmen the blacksmiths, without question, are the most numerous, 399; butchers the fewest, 102. When taking, however, into account that in the kingdom are to be found a much larger number of blacksmiths than of butchers, namely about 12,000, as opposed to 3,200, it may be said that the proportions borne by these two classes of the population is about equally unfavorable.

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Finally, in commenting upon the statistical information on the state of health of the prisoners confined in these penal prisons, the daily average of sick is seen to have been 18.49 per cent. male and 7.95 per cent. female; and as the average of prisoners during the whole period has been 898 males and 249 females this daily average of the sick list will be found to have been 2.06 per cent. of males and 3.19 per cent. of females. Still more striking will the proportions be found between males and females when examining how the sickness has ranged itself in the different epochs of the 25-year period. For every 100 prisoners the daily average on the sick list was as follows, viz:

	Male.	Female.
In 1861–'65	2.51	2.69
In 1866–'70	2.46	2.78
In 1871–'75	1.96	3.73
In 1876–'80	1.49	4.06
In 1881–'85	1.16	3.39

Sickness having thus been less prevalent among the male than the female prisoners an explanation of this must be found in the unfavorable sanitary condition to which the females are exposed, and that such is the case is plainly evident, for while Vridslöselille and Horseus penal prisons, which are new and isolated buildings, have little or nothing to be desired in a sanitary point of view, the conditions are seen to be totally different in the female convict prison at Christianshaven. This is an old building, although at the commencement of the 25-year period it was partially rebuilt and lies enclosed in one of the poorest quarters of this great city, close by a muddy canal, which, especially in the summer season, poisons the surrounding atmosphere. It cannot either fail of attracting attention that the variance in the bodily health of male and female prisoners took its beginning in the 1871–'75 period; that is to say, from the time when the Christianshaven penal prison became exclusively a prison for females. Up to 1870 this prison had also been partially used as a place of confinement for male prisoners as well; and about one-third of the female occupants before that date were confined in Viborg prison. There can therefore be scarcely any doubt but the sanitary conditions of Christianshaven prison are of an unfavorable character.—COPENHAGEN, *March 19, 1888.*

HENRY B. RYDER,
Consul.

PAPER MONEY IN PERU.

From my previous communications on this subject the Department has been made acquainted with the disappearance of government paper money in Peru as a purchasing power. The only employment remaining for it is the payment of 5 per cent. of customs duties at the rate of 35 paper soles for 1 in silver, and the paper thus received, or its equivalent with which fiscal rates are purchased, is incinerated in the main plaza at Lima. In all other transactions of whatever nature paper money is refused, and, as has been

stated, is merely a reminiscence. Sufficient silver coin exists for ordinary business handling, for the purchase of market supplies, and general shopping. The mint at Lima, one of the finest and most complete establishments of its kind in America (modeled on that of Philadelphia), turns out a considerable amount of silver money, principally in pieces of 20 cents; but the bulk of the silver extracted from the mines is exported in the rough to Liverpool and Hamburg, where the producers and owners find it cheaper to refine it, and where it is necessary as a return remittance to Peru. Up to the year 1878 there was no emission of paper money made by the Government. All that was in circulation was issued by the banks at Lima, and the minor ones at Piura, Trujillo, and Arequipa. The notes of the Bank of Tacna only circulated in that locality and in Bolivia. At that period a threatening financial crisis set in, and from the previous demonetization of coin by the Government to assist the banks, the paper in circulation became practically irredeemiable, and the value of that class of money issued by the banks fell greatly. From a power of purchasing exchange on London of 46 pence to the sol it declined to 19 pence. The Government then sought to avert the impending peril, and by a decree assumed the responsibility of redeeming the bank issue of paper money (about 18,000,000 soles), the banks in turn surrendering the credits they held against the state, and all the notes were called in to be stamped on the reverse with a legend to the effect that they were guaranteed by the Government. This did not improve the situation; little confidence was reposed in the ability of the Government to meet this new obligation, and the sudden influx of new money, thus improvised, into the treasury not only induced extravagance, but so captivated the Government that new emissions were resorted to on the part of the state, naturally decreasing the exchange value of the paper in use. Then, in 1879, came the war with Chili, and the necessities arising therefrom forced Congress to authorize still further issues, until the amount in circulation reached nearly 85,000,000 of soles, and the purchasing value of the paper sol fell to 6 pence sterling, when five or six years before it had ruled at 46 pence. Indeed, in the sixties, when Peru enjoyed her "flush times," with the available wealth of guano and nitrate and public works in progress, the notes issued by the Lima banks were at a premium over silver on account of the convenience and dispatch of handling, as well as from the accepted security of the guarantee.

After the assumption of the circulation by the Government the banks commenced to lose their power and scope of action. They were, of course, prohibited from further emissions, and the six institutions of that class established with Peruvian capital closed their doors with more or less delay. Now there are only two banks in Peru, neither issuing paper money, one an English institution, and the other largely based on foreign capital. And by a law of the last congress Government is expressly restrained from any experiments in the way of placing more paper money before the public. During the Chilian occupation the paper money was contemptuously regarded by the victors, and all exactions and impositions were collected in silver. On one

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occasion the Chilians captured 10,000,000 of soles in notes on a steamer coming from Panama, and forced the people to receive them in payment of such provisions as were paid for, while their acceptance in return from the people was denied. These, of course, were heavy blows for the paper money; still, as it was necessary as a circulating medium, it continued to be received, constantly decreasing in value, until six months ago, when a paper sol was only exchangeable for 2½ or 3 cents of a silver sol; or, in other words, it had declined to the equivalent of a penny sterling. And yet in 1874–'75 this same paper sol, then under the bank guarantee, was worth 46 pence and over. Then came the crash and collapse, which I have described in former dispatches. The Government made a stout battle to defend the paper money from annihilation, receiving it in payment of customs dues at the rate of 50 per cent. and at a value of 20 soles for the silver unit; but the confidence and patience of the people could bear the strain no longer, and the paper became a recollection.

The situation to-day is that the Government is responsible for the redemption of this money, and 2,000,000 of silver soles would be sufficient to redeem the 60,000,000 of paper calculated to be outstanding; but no one cares to conjecture when that redemption may be accomplished. Grievous injury has been inflicted by the inability of the Treasury to comply with its obligations, and there are many business houses and private individuals who are loaded down with inconvertible paper. The amount payable for duties—that is, received in part payment—is reduced to 5 per cent. of the dues collected, and is of infinitesimal importance.

The sudden change from paper to silver, leaving so many in embarrassed circumstances, caused naturally much loss and inconvenience. Prices in silver are fixed altogether out of proportion to those ruling in paper times. As a proof, I may cite the circumstance that six months ago 150 beeves were daily slaughtered at Lima for the public market and as necessary for the demand, while to-day less than 100 are sufficient to meet the requirements of the city, such is the rise in price from paper to silver. And in almost all other articles of like necessity the same disproportion in price is apparent. Only in vegetable produce, and some of the lower classes of flesh-bearing animals—swine, etc., (so considered here)—is the change in price moderate. No such proportionate increase has taken place in the wages and salaries paid; indeed, almost all of these were fixed in silver before the collapse came, but at a figure then in consonance with the value of paper. Rents have decreased in amount, and landed property is the general investment for money in Peru, so that the burden has not wholly fallen on the middle and working classes.

A decisive blow has been struck at the paper currency. It is now a thing of the past in this country, and no one expects to see it resuscitated.—CALLAO, *March 22, 1888.*

H. M. BRENT,
Consul.

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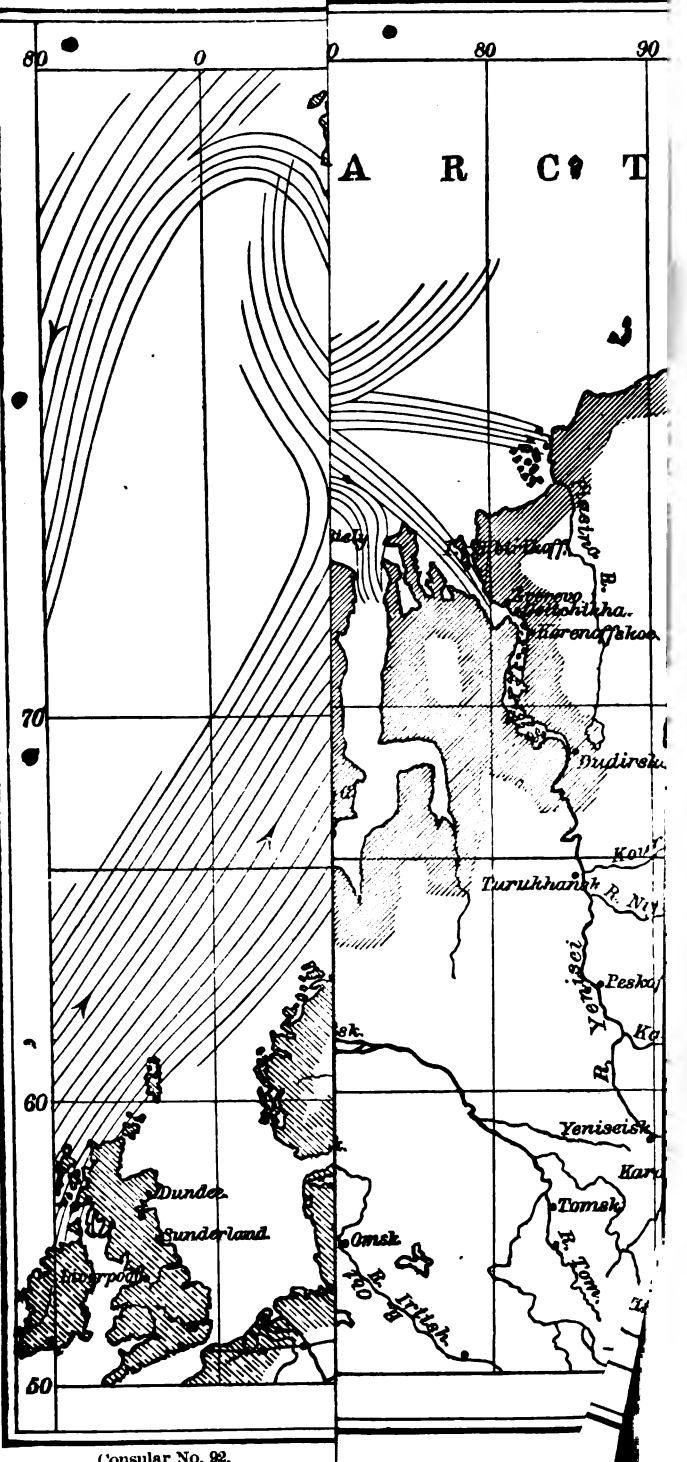

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RICE AND SUGAR IN TURKEY.

Rice and sugar are largely imported from abroad, not being produced in this district. Rice is cultivated on a small scale in eastern Roumelia, and on a still smaller scale in the district of Broussa, Asia Minor, but is not worth mentioning as an article of export, as it is all consumed in the district. The importation of rice and sugar into this country is large, boiled rice being the national dish, and sugar plums being largely consumed by Turkish women and children.—CONSTANTINOPLE, *April 3, 1888.*

D. STAMATIADES,
Vice-Consul General.

THE NORTHEAST PASSAGE.

Capt. Joseph Wiggins, an Arctic explorer well known in England, who had, in August, 1887, taken the steamship *Phœnix* from Newcastle of Tyne round the North Cape and through the Kara Straits about 1,000 miles up the river Yenisei, and there left her for the winter; arrived in Moscow on the 2d of February last, accompanied by a gentleman interested in this expedition and six of the crew on their way to the United Kingdom.

This is the third voyage via the Northeast Passage that Captain Wiggins has successfully accomplished.

Several years ago he conceived the idea that a large and lucrative trade could be established between Europe and Eastern Siberia by way of the Sea of Kara and the two extensive rivers Obi* and Yenisei,† both of which penetrate for more than 2,500 miles into the interior of the country, approaching the borders of China.

A road to Japan, he believed, could also be opened across the Baikal Lake and by the rivers Selenga and Amour. Determined to make the attempt, he with great courage embarked upon this enterprise, and at his own expense chartered and fitted out the *Diana*, a small steamer of 104 tons, and sailed in her on the 3d of June, 1874, from Dundee, passed through the Straits of Vaigatch on the 27th of the same month, and proceeded along the southern shores of the Kara Sea, or Samoide coast, in from 10 to 11 fathoms of water. No ice was seen that could at all obstruct the passage. The run from Hamerfest to the Sea of Kara had been made under sail, without the aid of steam.

For several weeks he cruised about the Island of Lütke without any danger or difficulty; on landing the soil was found to be covered with verdure and flowers, great quantities of berries of various descriptions, and

*From Troitsk this mighty river runs a course of 2,700 miles and falls into the Obi Gulf, which is 400 miles long and from 70 to 80 miles wide.

†The Russians gives its length as 3,472 miles. At Yeniseisk it is rather more than 2 miles in width, at Goltchikha it expands like a lake, with a breadth of more than 40 miles. The depth of the river varies according to the season, but soundings taken opposite Dudinsk showed a depth of 80 feet. The river has a fall of 4,000 feet, and the banks, generally steep and lofty, 60 to 100 feet above the water. In quiet places it has a current of 5 miles an hour, in swifter places 10 miles an hour and more.

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heaps of eider-down were seen in many places. The small lakes in the interior were found to swarm with eider-ducks, swans, and wild geese; no snow was visible, except on the tops of the Ural Mountains.

Immediately the center of the Sea of Kara got free of ice Captain Wiggins steered northwards, round Biely Island, as far as the mouth of the river Obi, which he reached on the 5th of August, but here he met strong gales and counter currents, and as the steamer sat deep in the water and had no speed in her, the original idea of running her up the Obi had to be abandoned.

After a short run further north Captain Wiggins satisfied himself that the sea was free of ice, and then turned southward, crossed the Gulf of Vaigatch, and made for Hamerfest, where he arrived within eight weeks of leaving Dundee, having in the meantime crossed the Sea of Kara and reached the mouth of the Obi, finding the sea open as far as the Yenisei, and might have gone up these rivers had circumstances not combined against it.

The *Diana* arrived at Dundee on the 25th of September, where Captain Wiggins left her, but determined to pursue his object, he purchased a small cutter called the *Whim*, not more than 45 feet long, 27 tons register, and sailed in this unsuitable craft straight for the Sea of Kara, but heavy gales and counter currents prevented him from making his way further than the Island of Kalgueff, the northeasterly gales almost blowing a hurricane, compelling him to turn back. After a somewhat rough voyage he reached Sunderland by the end of October, 1875.

In the summer of the following year, aided by some of his friends and admirers, he purchased the screw steamer *Thames*, and, within six weeks of leaving England, he safely circumnavigated the Sea of Kara and then made for the mouth of the Obi.

While in the Sea of Kara, in 1874, Captain Wiggins came to the conclusion that the gulf stream and equatorial currents must flow into the sea, and after a number of careful observations and nautical surveys he compiled the following table:

Date.	Locality of observation.	Eastern longitude.	Northern longitude.	Temperature of the atmosphere.		Temperature of the water on the surface.	Density.
				In the shade.	In the sun.		
July 5	.....	66° 35′	69° 25′	45°	65°	38°	4
11	Opposite the Island Sutke.....	.....	.....	37°	67°	35°	4
23	In a mass of drafting ice.....	66°	70° 10′	45°	.....	37°	1⅓
25	Stationary in a mass of ice.....	.....	.....	55°	.....	47°	1½
Aug. 27	.....	65° 10′	69° 54′	50°	.....	47°	5
28	Vaigatch Straits.....	.....	.....	45°	.....	50°	4
30	.....	48°	70° 24′	43°	.....	43°	5
31	.....	44° 10′	70° 30′	43°	.....	43°	5½

The above table shows that the temperature of the water in the Vaigatch Straits is 2 degrees higher than that of any other spot of the Arctic Sea.

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In 1876 he repeated his observations, with the results shown in the following table:

Date.	Locality of observation.	Eastern longitude.	Northern longitude.	Temperature of the atmosphere.		Temperature of the water on the surface.	Density.	Specific gravity.
				In the shade.	In the sun.			
Aug. 2	Vaigatch Straits	.....	.....	48°	.....	5●°	.....	25
3	.....	61° 58′	70°	58°	.....	48½°	20	.....
9	.....	67° 40′	68° 50′	55°	90°	48°	20	.....
27	.....	65° 30′	69° 42′	60°	.....	49°	17	.....

Captain Wiggins is of opinion that these observations positively demonstrate that the Sea of Kara owes its temperature to the gulf stream and equatorial currents, and maintains that exactly similar observations taken the same year and at the same latitudes in Davis Strait and Eastern Greenland showed the temperature to be 1 to 2 degrees above freezing point, or 33 to 34 degrees.

On 2d of September, 1876, the *Thames* reached the mouth of the Obi, sailing all the time, no ice being met with. Here contrary winds prevented her from ascending the Obi, and having waited for a few days, and the wind not changing, she directed her course for the Yenisei. On the way many islands were sighted, all of them covered with verdure and alive with rein-deer. The steamer anchored among these islands for five days, lying as safely as in a port, although a strong hurricane was blowing all the time, but the water was perfectly smooth between the islands.

The course was then continued up the river Yenisei, a number of fine islands offering splendid harbors were also here met with. A light northerly breeze soon brought the vessel to the first village at the entrance of the Yenisei, where the roadstead forms a very safe harbor for ships to load in during the summer months. Entering the village, Captain Wiggins found it completely deserted and the huts without any roofs to them, a boiling-house, and a number of large vats scattered about the place bore evidence of having been used for extracting seal and walrus oil, no doubt by Russian fisherman who visit this place at certain intervals.

Captain Wiggins continued up the Yenisei, and for the first time saw the natives at a village called "Zverevo," which having passed he reached a church-village, "Korenoffskoe," higher up the river. Here the inhabitants offered to pilot the steamer to Doudinskoe, a village above the mouth of the Yenisei. After several days of hard labor, with the aid of the steam-launch, Captain Wiggins was fortunate enough to discover the only channel there was, with no less than 3 fathoms of water all the way of half a mile in length. Doudinskoe was soon reached, and a splendid channel discovered, with not less than 5 to 6 fathoms of water, here the captain heard of a small river, an affluent of the Yenisei, at a place called "Koureika," where he could safely lay up his steamer for the winter, until the breaking up of the ice in

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spring. This spot was reached on the 17th of October, and as ice was already forming, the ship was made fast with as little delay as possible.

On the 24th of November Captain Wiggins left his steamer and started on sledges for the town of Yeniseisk, a distance of about 600 miles, passing through some very beautiful scenery. Splendid forests of birch, pine, plane, cedar, spruce, alder, etc. The weather was clear but very cold, the thermometer registering as low as 40° below zero.

Yeniseisk* was reached in the middle of December, where Captain Wiggins met with every possible hospitality. This town is an important center of Siberian commerce, has many handsomely decorated houses and fine churches in the Oriental and Byzantine style. A number of wealthy merchants reside here who carry on a large trade in wheat, barley, oats, leather, tallow, tea, etc. Many of the gold-mine owners' houses are most luxuriously got up, some of them perfect palaces. It has a mixed population of Russians, Poles, Tartars, and Jews. The gold mines in this district are both numerous and extensive. There are also some copper and iron mines.

The next town of any importance reached on this route was Tiumen,† it is the principal center of the navigation on the Obi, and is a very busy town. Well built and handsomely fitted steamers, 300 feet long and of 300 horse power, are to be seen on the river, their machinery of the newest construction, and most of them built at Tiumen. There are also some splendid barges 200 to 300 feet long, carrying a cargo of 500 to 600 tons, at a drought of not more than 3 feet of water; several of these were in course of construction at the time.

From Tiumen the journey was continued on sledges to Ekaterineburg, the pass across the Ural Mountains, and thence to Nijni-Novgorod, altogether a distance of about 2,700 miles having been traversed on sledges. Nijni-Novgorod being connected by railway with Moscow and St. Petersburg the journey was no longer a difficult one, and London was reached on the 31st of January, 1877.

In the spring of 1877 Captain Wiggins returned overland to Siberia and down the Yenisei, intending to take the *Thames* back to England, but he only arrived to see her driven before the drifting ice until she became a perfect wreck, and he had once more to return by land.

THE STEAMSHIP WARKWORTH TO THE OBI IN 1878.

On the 1st of August, 1878, Captain Wiggins started from Liverpool in the steamer *Warkworth*, 340 tons net register, direct for Nadim, a fishing station at the mouth of the Obi, below Obdorska, where he landed about 500 tons of salt and other British merchandise, took in about 400 tons

*Yeniseisk, 2,964 miles from Moscow; population, about 10,000.

†On the rivers Tura and Tom; population, 14,000. Principal industry: Production of leather and manufacture of carpets.

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of wheat, and returnd to London, the whole journey occupying two months.*

After a number of unsuccessful attempts to form a company for the purpose of fitting out another expedition, and giving Captain Wiggins an opportunity of showing the advantages to be gained from his explorations, a few gentlemen of Newcastle and London formed themselves into a company and purchased a powerful and fast little screw steamer, called the *Phœnix*, 279 tons gross register, and after taking on board 200 tons of salt and a small cargo of miscellaneous goods she left the Tyne, on August 5, 1887, with a crew of twelve hands, in command of Captain Wiggins and accompanied by the managing director of the company, who had charge of her cargo.

The steamer put in Vardoe, in Norway, for the purpose of coaling, and proceeded direct for the Sea of Kara. She met with heavy gales which delayed her for a few days, but on the 20th of August she crossed the Straits of Kara, making straight for the Biely Island, and thence for the mouth of the Yenisei. She reached the latter on the 1st of September. No ice was met with the whole of the way, and the walrus hunters informed Captain Wiggins that this was an exceptionally open year.

What he saw, however, only convinced him that these seas should only be navigated by vessels especially constructed for that purpose, iron ships being quite unfit for it. The ship was greatly delayed by strong head winds, snow, and fogs.

On the 5th of September she reached Goltchikha, and there anchored for the night. The journey could now no longer be continued at night time. With the aid of the steam launch and the Russian fishermen, who readily offered to pilot the vessel from one station to the other, Doudinskoe was soon reached.

At a village higher up the river, called Sullivanovo, a suitable warehouse was found, and the *Phœnix* landed half her cargo of salt there, about 100 tons, which was accomplished with the ship's boats in five days, and lightened her to 8 feet, so that she could safely cross the Kamenno-Tunguska pass. The navigation now became extremely difficult and but slow progress was made, as the steamer had a current running at the rate of almost 10 miles an hour, dead against her. Fishermen who knew the deep parts of the river were employed to assist as pilots. The steam launch was sent ahead to take soundings, and found a channel; observations could not be taken owing to the fog, thus Captain Wiggins may be said to have felt his way up the river for a distance of about 1,000 miles. The country up the Yenisei is very pretty, except from the entrance of this river down to the Kara Sea, a part known as the Tundra, which is a barren and cheerless expanse.

Yenisusk was reached on Sunday, October 9, here the remainder of the cargo was landed and warehoused, and as the frost was rapidly setting in

*The *Neptune*, of Hamburg, made successful voyages in 1878 and 1880, also the *Louise*, of Bremen. Three British steamers also attempted the voyage, but having started too early in the season found the Kara Sea full of ice and had to turn back.

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the *Phœnix* was put into her winter quarters, in a creek called the Siranka, where she could safely remain until the break up next spring.

After stopping two months at Yeniseisk Captain Wiggins, the managing director, and six of the crew of the *Phœnix*, proceeded on sledges to Krasnoiarsk. On the road some extensive gold mines were visited,* which appeared to be profitably worked.

The journey was then continued as far as Tiumen, where the party took train to Perm, there sledges were resumed until Nijni-Novgorod was reached and the journey assumed a more ordinary character.

Captain Wiggins appears to be as hopeful as ever of ultimate success. He maintains that the enormous cost of transport of merchandise to Siberia overland, which is, at present say from Moscow to Irkutsk, about $80 per ton, must deviate a great quantity of the traffic to the new sea route as soon as a pretty regular communication is established, and that $16 per ton from the United Kingdom to the Yenisei would leave a very handsome profit for the ship.

It is proposed that the ocean steamers should not proceed further than the mouth of the Yenisei, where a station and warehouses should be set up and small river steamers should carry the goods up the river and bring down grain for the sea-going steamers.

In the opinion of the Captain, a country so rich in gold, iron, copper, graphite, marble and coal; its vast forests of splendid timber (of enormous size), and extensive districts of arable land, capable of supplying the whole of western Europe with wheat, oats, barley, flax, etc., once placed within such easy access as a twelve days' journey from the more civilized and thickly-populated parts of Europe, cannot fail to open out an enormous field of enterprise so largely sought for.

One would naturally conclude that the abundance and great variety of fish in all the Siberian waters, the numerous feathered tribe upon the wing, and a healthy, bracing climate form a combination of nature's bounties sufficiently attractive to keep increasing the influx of immigrants into the country and supply the labor necessary for her development. Should such a measure appear at all desirable the Russian Government, so I am assured, is quite willing to remove her penal settlements to more recluse parts.

In conclusion I must mention that Captain Wiggins was very much pleased with the permit he obtained from the proper authorities at St. Petersburg to land his cargo on the *Phœnix* free of duty; but this must not be looked upon as an exceptional case. Hitherto goods imported direct into Siberia have not been subjected to duty, the routes generally made use of are those from Hamburg and from Odessa to Vladivostok.†—Moscow, *March* $\frac{24}{26}$, *1888*.

N. W. HORNSTEDT,
Consul.

*Captain Wiggins showed the writer some very rich specimens of gold quartz, which he had brought with him from mines that he had visited.

†Population, exclusive of troops, 6,000; value of imports in 1887 $5,100,000; value of exports in 1887, $1,100,000.

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CEREALS IN SWEDEN.

Wheat and the products of wheat are hardly the staple food of the people in either country. Rye and oats furnish the principal food product of the people of the two kingdoms. Wheaten bread is used by certain classes in cities and larger villages, and such persons are numerically small compared with the great body of the people.

In the north of Sweden oats are used almost exclusively for bread, porridge, etc., while in other districts rye is used universally.

The statistics for 1887 are not yet compiled. In 1886, as I had the honor to inform you in my number 115, there were imported into this kingdom 32,830 tons of wheat and 38,550 tons of wheat flour. This latter came almost exclusively from Germany and Russia, while most of the wheat came from those two countries. There were no direct cargoes from the United States, and what American wheat was imported was sold at an English, German or Danish port. It would likewise be impossible to say how much, if any, American wheat entered into the composition of the 38,550 tons of flour manufactured abroad and sold into this kingdom in 1886.

The competition of no one country had much influence on the conclusions of the Diet in imposing the import tax. The raising of wheat has ceased to be profitable in Sweden, and has been so for years. Estate property has consequently fallen in value and ceased to be remunerative. The lower chamber of the Diet has a majority of estate owners, who, after a long struggle, and through the operation of a most absurd law governing elections, of which I have heretofore given you an account, found themselves this year with power to legislate for their own and suffering fellow-land owners' interest. They have exercised this power; they have exercised it against the sentiment of the people of the kingdom and of the throne. It may have the effect of temporarily increasing the value of estate property, but in a country where poverty and genteel impecuniosity are only divided by a thin partition it is difficult to understand how anything can be added to the expense of living with the expectation that the people can bear the increase thereof.

If Sweden could enact a discriminating import law I am inclined to think it would be directed against Russia. The United States has been used as the great example of prosperity under a protective system, and the Swedish protectionist has hoped the same policy may furnish like results in his barren, snow covered, ice bound kingdom with its sterile soil and inhospitable skies. Sweden has the two most aggressive competitors for trade in all commerce on her east and south — Russia and Germany. The one with her almost prohibitory duties, changing and shifting constantly, disturbing all calculations of the factor and of manufacture, the other with her low-priced products cheapening markets, have whip-sawed Sweden's trade until it is all but ruined. These facts all classes recognize, but Sweden is powerless to remedy it.

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There has been no wheat imported into the country since the duty was imposed, and will not be until navigation opens in May. The price will be increased to the extent of the duty. The price of wheat bread has risen to a sum a little more than the proportionate duty on wheat. There is no duty on bread, and much of the supply comes from Denmark, and yet it has increased in proportion to the increase of the raw material.—STOCKHOLM, *March 30, 1888.*

RUFUS MAGEE.

PROJECTED RAILROAD IN ASIA MINOR.

I submit some facts in relation to the projected railroad from Constantinople to Bagdad. The proposed line, as is shown by the accompanying map, starts from Ismid the present terminus of a short line of railroad connecting that town with Scutari, the Asiatic suburb of Constantinople. Its length is about 1,400 miles and the estimated cost £15,500,000. Throughout its length it traverses a country well populated, abounding in mineral resources and producing great quantities of grain.

The great advantages to the country, commercially and as a civilizing influence, of such a road are too obvious to need mention. It is sufficient to say that it would create a new Asia Minor, open to the trade of the world a vast territory now closed, totally change the character of the country and the people, and practically advance Turkey in Asia from, say, the sixteenth to the nineteenth century. The commercial world at large has a special interest in this project as it will, if carried out, shorten the distance between Europe and India by nine or ten days, and give a route to the East independent of the Suez Canal.

The following are the principal points along the proposed route taken in order: Between Ismid and Angora, a distance of some 150 miles, there are no towns of special importance, though the country is well settled. The country is mountainous and in character reminds one of Swiss scenery. In the vicinity of Boli there are extensive forests of pine and wild cherry. The villages are surrounded with fruit orchards. Some fifty miles before reaching Angora the woods disappear and are replaced by sandy, treeless tracks crossed by deep rough ravines.

Angora is a city of about 20,000 population. It is the center of the mohair trade, a business which up to within a few years was very flourishing, but has much declined of late. Were the transport problem once solved, so that machinery could be introduced and products exported, there is little doubt that the city would become an important manufacturing center, as it is a central market, water power is available, and there is an abundance of coal in the vicinity, though not mined. The province of which Angora is the capital is rich in minerals of various kinds, especially copper and argentiferous lead. At Ak Dagh there is iron ore; at Mohallitch copper and fullers earth; at Likili rock salt. The exports are mohair, sheep's wool, opium,

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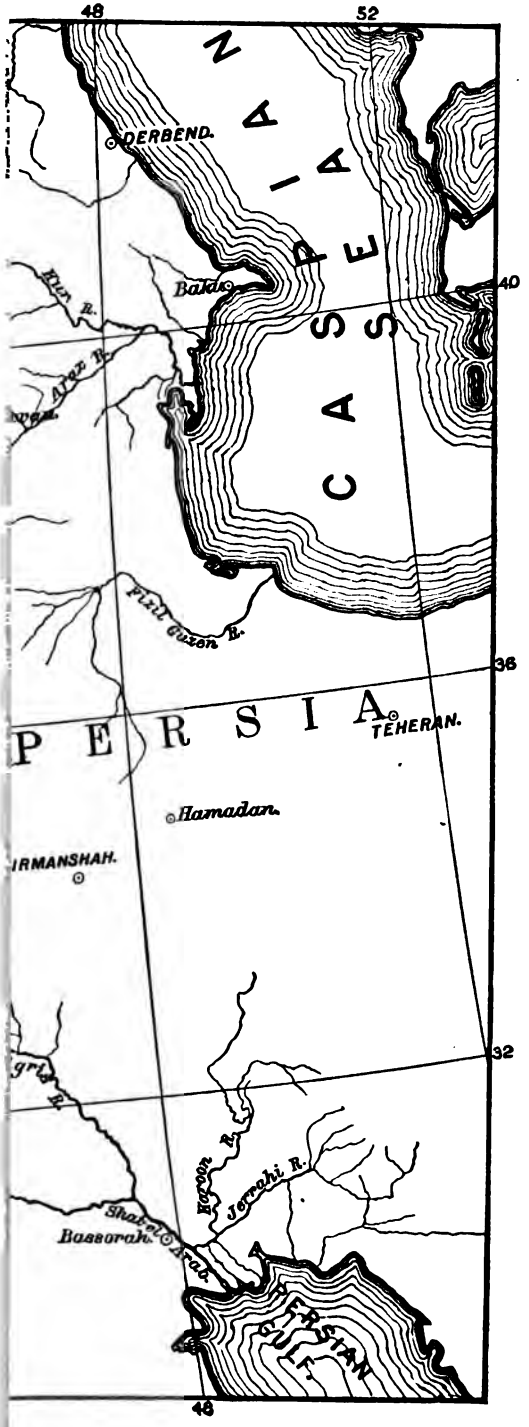

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yellow berries, gums, silk cocoons, rugs and carpets. The imports, mainly via Smyrna) of foreign goods, principally from France and England, amount to about £225,000 per annum. Fifty miles beyond Angora the proposed route crosses the Denek mountains where there are silver mines. In the surrounding villages the people are principally engaged in rug manufacturing. There are extensive deposits of niter in this region.

Youzgat, the next important point, is a walled city surrounded by high hills with precipitous sides. It has a population of 10,000 to 15,000. After passing the chain of hills a succession of plains is reached. These are of great fertility and are thickly covered with villages. There are some 900 villages in the Sandjak of Youzgat with a total population of some 340,000.

Kaisarieh. — A branch line from Youzgat to the important city of Kaisarieh would probably be built. The distance is about 100 miles. Kaisarieh has a population of 60,000 and is a city of much wealth. Its principal trade is in hides, yellow berries, wool and gum tragacanth. A line extending south through the Anti-Taurus Mountains via the Cilician Gates, 150 miles, would connect the proposed main line with the railroad between Mersine and Adena and give an outlet on the sea coast.

Sivas. — The next important point on the line is Sivas, a city of 40,000 inhabitants. As this city occupies an important strategical position commanding the approaches from the Russian and Persian frontiers, is the center of a very large grain district and is the natural starting point for a branch road to the Black Sea on the north, it will undoubtedly become one of the main points on the line. The trade of the city is entirely in the hands of the Armenians. It consists of hides, grain, rugs, wool, carpets, silver wire work, vegetable dyes, etc. East and northeast of Sivas is an extensive mineral district, the center of which is Kara Hizzar. This region abounds in argentiferous lead, coal, asbestos and marble. While the road will probably not run directly through this district it will be near enough to it to afford means for transportation of ore, and thus open up resources which are now useless. Continuing southeast from Sivas the route passes Arabkir, a thriving town of 29,000 inhabitants. The people are principally engaged in the manufacture of coarse cotton cloth from English yarn on hand looms. There are probably one thousand looms in use.

Egin is a place of some 20,000 inhabitants, and is renowned for its wine and the extensive fruit gardens which surround it.

Deverige. — There are extensive iron deposits here, but the mines are little worked.

Keban Medan, near the Euphrates River has silver and lead mines which have been worked intermittently for centuries, but with comparatively little profit, owing to the crude methods employed and the difficulties in transportation of ore.

Kharpoot. — At Kharpoot the projected line crosses the Euphrates. The city occupies a conical eminence at the termination of a range of hills. The population of the city proper is about 12,000. It is, however, surrounded

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with numerous villages, so that the city and its dependencies have a population of nearly 100,000. Below the eminence on which the city stands is an extensive plain, very fertile, 40 miles long and 4 to 6 wide.

Diarbekir is the next large city. It was formerly of great commercial importance doing a large trade with India by way of Bagdad and with Europe by way of Aleppo. It had an extensive silk industry. This has declined in late years, but the trade is still considerable in silk cocoons. These sell in Constantinople at 35 piasters per kilogram, equal to about 70 cents per pound. Diarbekir is an important military point, commanding as it does the approaches from Erzeroum and the transportation by the Tigris. The navigation of the Tigris begins here. Goods are floated down to Bagdad on rafts made of inflated skins. The products of this district are silk, cotton, grain, wine and dried fruits.

Mosool. — Following the valley of the Tigris the line reaches Mosool, a city of considerable size. The neighboring districts are possessed by wild tribes of Arabs, Koords and Turkomans. From Mosool to Bagdad the Tigris is a broad stream being enlarged by tributary waters of the upper and Tjab and other drainings from the mountains of Koordistan. The banks of the stream are covered with a thick jungle.

Kerkook Petroleum Springs. — On the eastern side of the Tigris, in the neighborhood of Kerkook, are numerous petroleum and naptha springs which furnish employment for many of its people. The most abundant supply is obtained from the hills around, but a good deal is collected on the surface of the water in the ditches and stagnant pools. Some years ago this petroleum was largely used in Bagdad and Bussorah, but as the natives do not understand how to refine it properly, it has of late years been superceded by Russian and American oil. If the proper scientific methods were used in refining it, it is probable that the oil from this region might become of great commercial importance as it is inexhaustible in quantity, and even without a railroad transportation is easy by way of the Tigris and Persian Gulf to Bagdad, Bussorah, India and beyond. There is, it is said, no limit to the supply which might be procured from the hills about Kerkook and Arbela. These hills have been yielding bitumen and petroleum since the time of Alexander the Great, at least, in whose honor Arbela was illuminated after his great victory over the Persians.

The petroleum springs from almost every hollow in the hills. It is very greasy to the touch. As it rises from the earth it is of a brownish color with a greenish tinge. It quickly becomes opaque and hard in which state it is easily broken with a shining resinous fracture. The natives use it for fuel to burn limestone and also to cover boats with. The boats which are covered with this substance look as if they were covered with a thick hide. Mr. Grattan Geary, to whom I am indebted for these particulars, thus describes the principal spring a funnel-shaped hollow ten or twelve yards in diameter. "The hollow is filled with a dark blackish brown substance from the center of which salt water bubbles up and escapes to some salt ponds, where evaporat-

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ing, its saline matter is left behind. Sometimes the water rises at intervals from the center in jets a foot and a half high and at others it bursts out in a considerable volume, raising the petroleum into huge bubbles which burst and let the imprisoned water out with a gurgling noise. The pit is very deep in the center, but its shallowness at the edges permits the people to stand in it up to their knees, while they with facility roll up the tenacious substance into masses which are carried away and placed to dry in the heat of the sun. When hardened it is used chiefly for fuel for the burning of limestone. The flames give a strong light and heat and it leaves a small earthy residue after it is burned. Notwithstanding the quantity that is constantly drawn off, the petroleum always continues at the same level and the Hittities say the supply in the pit is inexhaustible. The fluid skimmed off the water in the ditches and marshy places in the neighborhood of Kerkook is of a blackish green color and smells abominably."

Bagdad.—Bagdad, the terminus of the proposed line, is a city of some 80,000 people, the center of a vast outlying district and population, and the commercial emporium of Turkish Arabia. The population is very mixed, but Arabic is the language spoken by all, whether Arabs, Jews, Turks, Armenians, Chaldees or Europeans. On account of the holy tombs in the vicinity, the city is visited by tens of thousands of pilgrims from all parts of the Mohammedan world every year. One of the chief exports is wool. The trade has in late years declined owing to the competition with Australian wool. Bagdad wool is principally used in French looms for carpet manufacture. The quality varies with the breed of the sheep and the pastures in which they graze. That most esteemed is raised by the Beni-Lam and Montifik Arab tribes. It is of a fine silky fiber and elastic quality. From 30 to 40 per cent. is lost in washing. The quantity of grain raised about Bagdad and along the Persian Gulf is immense. At times so abundant is the supply and so inadequate the means for transportation that wheat is used for fuel on the coast of the Persian Gulf. Gall nuts and gum tragacanth are gathered on the surrounding hills. The soil is capable of producing unlimited quantities of cotton, but little is actually grown. Mulberry trees grow in abundance, and experiments in silk manufacture are reported to have resulted favorably. Rice of very good quality is produced. In late years the cultivation of sugar cane has been introduced from Egpyt. From Bagdad navigation to the Persian Gulf and India is easy. Should the railroad be built, Bagdad, as the entrepôt for the trade between the east and the west, is sure to attain a commercial importance hardly second to any city in the east.

As to the probable needs of this great extent of country when opened up by the railroad, it may be said that they include everything. Practically nothing is produced in the manufacturing line now. With the advent of the railroad, with the new towns and cities that will spring up, the new resources and industries developed and especially with the new ideas and wants which civilization creates, there will be a new market and a constantly increasing demand for almost everything which Europe and America manufactures.

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Character of the Population.—The population of Asia Minor is made up of a large number of diverse races, religions and languages. The extent to which this is the case may be judged from what is found in this province, Sivas. There is, in the first place, the broad distinction of the two creeds, Islam and Christian, a distinction which marks every detail of life, political and social. Then, among the minor divisions may be enumerated the so-called Turks, consisting of a few Osmanli and Seljuk Turks in the towns, and of the hardy, patient and temperate race which occupies the country from the anti-Taurus to the Black Sea, a race formed of the earlier inhabitants of Asia Minor who adopted Islam at the time of the conquest, and gradually losing their own dialects, acquired the language of, and finally became amalgamated with their conquerors. Besides these there are the Avshurs of Anti-Taurus of Turkoman origin, the Koords having their own language, the several divisions of the Circassians, each with its own dialect, the Tartars, Gypsies and the emigrants of late years from Georgia and Laz. Among the Christians, forming about one-third of the population, are the Armenians, Protestants, Catholics, Gregorians and Greeks, each sect cordially hating the others.

Speaking generally, the moslem part of the population is in the cities in some sort of Government employ, and in the country is engaged in farming or herding. The Christians or non-moslems are merchants, money changers, agents, land proprietors, agents or artizans. A Turkish (*i. e.*, moslem) merchant doing business on his own account is almost unknown and a Christian peasant tilling the soil with his own hands is extremely rare. It is hardly possible for any one who has not traveled in Asia Minor to realize the low position which the people occupy in the scale of civilization. Except in the larger towns education is almost unknown. Manufactures except of the simplest kind do not exist and in agriculture, in the construction of houses, in handicrafts, etc., there is little improvement on the primitive methods of the earliest ages.

Population of some of the towns and districts traversed by the proposed railroad from Constantinople to Bagdad:

Angora city	20,000	Keban Maden sandjak	6,000
Angora sandjak, including 5 towns and 1022 villages	583,000	Chemiskesek sandjak	16,000
Youzgat sandjak, including 898 villages	348,000	Peri sandjak	10,000
Sivas city	40,000	Argana Maden city	11,000
Sivas sandjak	103,000	Argana sandjak	180,00
Kharpoot city	12,000	Mosool and vicinity (male adults only)	88,000
Kharpoot sandjak	81,000	Adjacent kazas	56,000
Arabkir sandjak	29,000	Kerkook sandjak	127,000
Egin sandjak	22,000	Bagdad and vicinity *	61,000
		Adjacent districts	64,000

SIVAS, TURKEY, *March 1, 1888.*

H. M. JEWETT,
Consul.

* The male adult population of the whole of the district known as Turkish Arabia and having Bagdad and Bussorah as its commercial capitals, is estimated at 1,976,000.

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VILAYET OF BEIRUT.

The political subdivision within my Consular district, known under the Arabic name of Mutessarrifiaté, (Turkish, Sanjack), arrondisement of Beirut, has, on the 10th of this month, been officially proclaimed an independent vilayet (province), with his excellency Ali Pasha as its governor-general, and with Beirut, under which appellation it is to be officially known, as the seat of the administrative offices.

The imperial firman solemnly read before a large assembly of notables and in the presence of an immense concourse of all classes of the population, declares the new vilayet to comprise—

I. The Mutessarrifiate (arrondisement) of Beirut, to which are subject the following caïmakamiates (Turkish, cazas) cantons: 1. Sidon, with the mudiriate (Turkish, nahié) dependency of Esh-Shekif. 2. Tyre (Sour), with the mudiriate of Tebuine. 3. Merj-Ayoun.

II. The mutessarrifiate of Tripoli, with the mudiriates of—*a*, Tartous, *b*, Arwad; *c*, Hazoor; *d*, Danineh; and the caïmakamiates of—1, Akar; 2, Safita; 3, Hossou, with the mudiriate of Wady Ennassara.

III. The mutessarrifiate of Latakia, with the mudiriate of Bayer Bojak, and the caïmakamiates of—1, Jabaleh; 2, Sahyoou; 3, Markab, with the mudiriates of *a*, Kadmous; *b*, Khwabi.

IV. The mutessarrifiate of Acca, with the mudiriate of Shefa Amer and the caïmakamiates of, 1, Haifa, with the mudiriate of Caseria; 2, Nasserat or Nazareth; 3, Tabariæ or Tiberias.

V. The mutessarrifiate of El-Balka, with the following caïmakamiates: 1, Jenine; 2, Beni-Saab; 3, Jemaïne; 4, Salt, with the mudiriates of, *a*, Jizeh, and *b*, Maan.

These mutessarrifiates, with their respective subdivisions of caïmakamiates, have all been detached from the old vilayet of Syria, which, under its reconstructed form and with its governmental offices and officials unchanged and still at Damascus, consists now of the following remaining three mutessarrifiates, viz:

I. Damascus, with the caïmakamiates of—1, Baalbek; 2, El-Bekaa el-Aziz; 3, Wady El-Ajam; 4, Hasbaya; 5, Rashaya; 6, Douma; 7, Nebk or Jabal Kalamoon.

II. Hama, with the caïmakamiates of—1, Homs, with the mudiriates of, *a*, Kosseir, and *b*, Iky Kapuly; 2, Hamidieh; 3, Sabimieh.

III. Hauran, with the caïmakamiates of—1, Ajeloon; 2, Jabal Ed-Drieze, with the mudiriates of, *a*, Salkhad; *b*, Majdal; *c*, Shekba; *d*, Ara; *e*, Annan; *f*, Sala; *g*, Selim; 3, Koneitera, with the mudiriate of Mejdel-Shems; 4, Derha; 5, Basser El-Harir.

Each vilayet or province within the Imperial Ottoman Empire is presided over by a vali or governor-general, whose attributes and duties embrace the financial and administrative affairs of the province—public instruction, public works, the police and civil and criminal actions.

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The Vali in his absence is replaced by an adjoint or assistant governor-general, known under the name of mouawin.

The mutessarrifs or governors are charged with the administrative and financial affairs, with the police and within the limits of their attributions, with the execution of civil and criminal sentences within their mutessarrifiates.

The caïmakams, or sub-governors, perform similar functions in the caïmakamiates over which they are placed, while the duties of mudirs in the administrative affairs of the mudiriates, consist in giving publicity to the laws, regulations, orders and prescriptions of the government, etc.

Villages situated within the circumspection of a mudiriate are presided over by mukhtars, who receive their orders, and are directly responsible to their superiors, the mudirs.

Great expectations are entertained of the new vilayet, and the advantages of this new political division must be at once manifest. It comprises the most important and prosperous districts bordering on the Mediterranean sea, with such populous cities and ports as Latakia, Tripoli, Beirut, Sidon, Acca and Haifa, representing all the commerce and wealth of the old vilayet of Syria and much of its industry.

The new governor-general is spoken of as a man of high and rare accomplishments, and of irreproachable integrity and character.

The vilayets of Adana and Aleppo and the government general of Mount Lebanon, with a Christian governor-general at its head, complete the list of provinces over which the jurisdiction of the Beirut consulate extends.—

BEIRUT, *March 15, 1888.* ERHARD BISSINGER,

Consul.

CHILIAN LOCOMOTIVES.

I have referred incidentally to the building in Chili of certain locomotive engines and cars for the State railways. I had lately the satisfaction of visiting and inspecting, unofficially, of course, the extensive works of the contractors for the 6 locomotives, Messrs Lever, Murphy and Company, at Caleta Abarca, about four miles from this port. Mr. Lever is an Englishman, though formerly a resident of San Francisco. The firm have large capital, been long established, and have done a great deal of work in repairs on United States vessels of war.

The wages of their employés, about 450 in number (some 70 per cent. of native birth, the others English, Scotch and Irish) run as high as $7, Chili money, (nearly $4 gold) per day. The locomotives (two still in the shops in a forward state, the four others contracted for having been delivered, the first in December last,) are entirely constructed here with the exception of the wheels, which are of English manufacture. The contract price was $40,000 each, about $21,000 gold. Eighteen months was allowed for the construction of all. The general design is the American with the American logic, and with cylinders on the outside, instead of on the English plan.

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These cylinders are relatively larger than ours, 17 x 24. Certainly the American engine is much the better adapted to the sharp curves of those mountain roads.

The machinery used by the constructors for this and other of their metal work is English, that for wood working from the United States. Their steel is imported from England, pig-iron for castings from Scotland. Through the kindness of Captain Saukey, an Englishman, but holding the appointment in the Chilian Naval Service of Inspector General of Machinery, I had the opportunity of inspecting the new steel boilers in construction at the same works for the Chilian steam crovette "*Pilcomays*" a wooden vessel built in England, captured from Peru in the late war. The contract price for these boilers (2) is $52,000 paper currency, about $27,000 gold.—VALPARAISO, CHILI, *February 29, 1888.* JAS. W. ROMEYN, *Consul.*

MINE LABOR IN BRITISH COLUMBIA.

There is a division here as to employment of Chinese even among the miners, as many of them who are paid by the ton of coal that they mine, and sometimes realize $4 and even $5 per day, employ Chinese at $1 or $1.25 per day to shovel and load vans, and sometimes even as tampers, they, the white miners, performing but little heavy labor themselves.

The mining regulation laws of the province are excellent and thorough, but under this pressure they are being considered by the legislative assembly (still in session) for amendment, as during the debate recently Mr. Dunsmuir gave some of the causes tending to produce explosion in the mines, showing the careless and reckless handling of explosives by the white miners. The contest is mainly over the amendment excluding Chinese from employment in the mines. Notwithstanding the existing depression at Nanaimo and vicinity the coal fields of the island are being explored and new mines developed. Mr. Dunsmuir is now opening a mine some 45 miles north of Nanaimo.

The "Colonist" of the 29th ultimo reports that Dr. Griffin, of London, England, has bonded 2,727 acres of the mining property held by Mr. Bate, of Nanaimo, and others, preliminary to placing it on the market with a view of taking out coal by a company. The article further states that the tract is contiguous to the finest mineral and coal deposits in this island.

A considerable party of Belgians arrived here yesterday, and under charge of Paul Watelet, Belgian agent-general de l'emigration au Canada, proceeded to Wellington and are now working in Dunsmuir's mines. There are 18 in the party, making 80 Belgians now employed there.

These troubles have greatly enhanced the price of coal, which until recently has been sold at retail here at $15 per ton of 2,000 pounds.

Of the Bauff anthracite coal some 27,000 tons are now waiting shipment at Vancouver, as per press report. Freight rates are high, and the demoralization among seamen great.—VICTORIA, BRITISH COLUMBIA, *April 9, 1888.*

ROBT. J. STEVENS,
Consul.

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SALT IN THE BAHAMAS.

The legislature of this colony has just passed a bill, which has been signed by the governor, by which salt has been placed upon the list of articles to be imported into this colony free of duty. This action has been taken in order to place this colony in a position to enjoy the privilege of having its salt entered free of duty into the United States, provided some action is taken by the United States. This colony produces a salt that is known in the market by the name of "Turk's Island salt," (Turk Islands formerly belonging to the Bahamas,) which is regarded as very valuable for packing of meats and fish. For years the salt industry has been at a low ebb, the duty of 6 cents per bushel substantially keeping it out of our market, and so but little has been raked. With a free market in our country it is anticipated that the quantity of salt produced in these islands would be enormously increased, and that most of it would find its way to the United States.—NASSAU, N. P., *April 14, 1888.*

THOS. J. McLAIN, JR.,
Consul.

EXPORT OF CEREALS FROM ARGENTINE REPUBLIC.

The following table shows the exports of cereals from the Argentine Republic from 1878 to 1887 inclusive:

Year.	Wheat.	Flour.	Maize.	Linseed.
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*
1878	109,611	2,919,793	19,064,044	104,279
1879	7,547,438	1,603,045	29,521,317	246,034
1880	25,669,317	1,428,046	15,012,015	957,999
1881	1,165,628	1,287,396	25,052,189	6,394,518
1882	157,078	548,779	107,327,155	23,351,294
1883	1,705,292	4,844,385	18,634,351	23,061,736
1884	60,754,677	3,743,389	113,710,088	33,991,950
1885	108,499,228	7,447,077	197,859,612	69,426,124
1886	37,864,413	5,262,222	231,660,300	37,689,967
1887	237,865,925	5,386,448	361,456,705	81,183,742
Total	481,538,607	34,470,580	1,117,318,776	276,407,923

The value of the exports for the years 1886 and 1887 shows astonishing results, as will be seen by the following:

Article.	1886.		1887.	
	Kilograms.	*Dollars.*	*Kilograms.*	*Dollars.*
Wheat	33,864,417	1,510,388	237,865,925	9,514,637
Flax	37,689,969	1,825,199	81,183,752	4,059,187
Maize	231,650,300	4,663,421	361,457,705	7,229,154
Peanuts	769,197	30,747	3,367,300	134,696
Turnips	2,142,944	85,709	940,821	37,633
Various	3,190	945	132,785	5,307
Total		8,106,399		20,980,617

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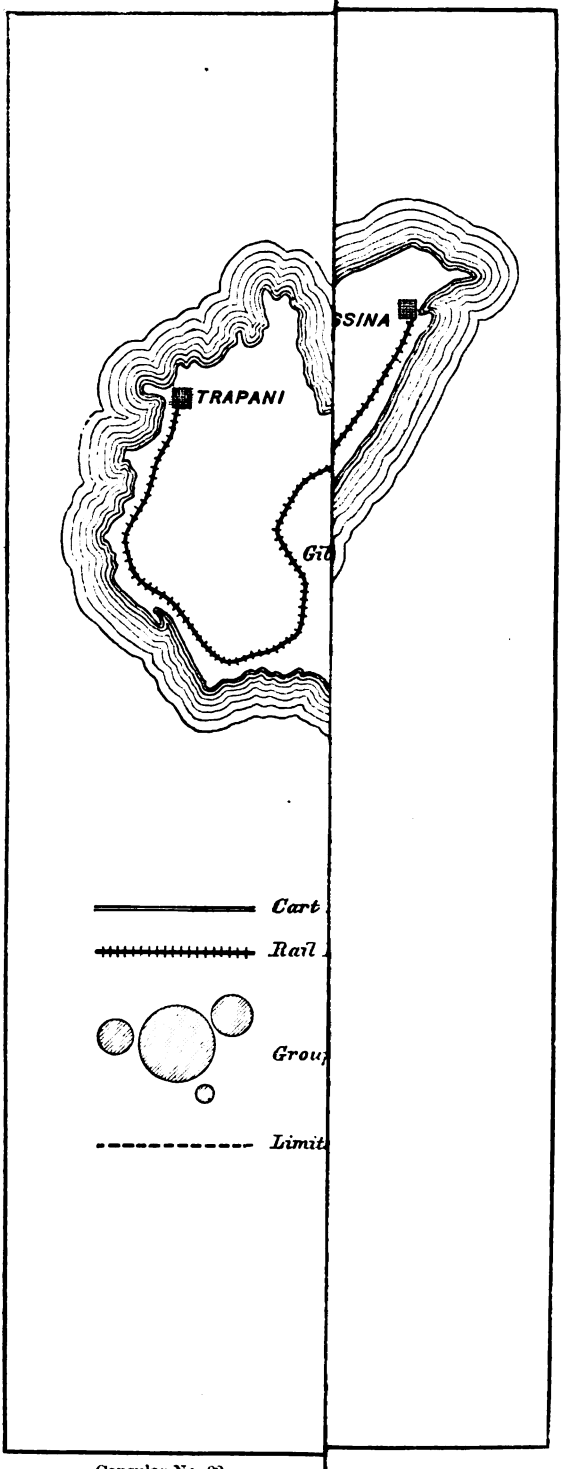

Consular No. 92.

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SULPHUR MINES IN SICILY.

Sulphur, or brimstone, is a hard, brittle substance of various colors, from brilliant yellow to dark brown, without smell when cool, of a mild taste, and burns with a pale blue flame, emitting pungent and suffocating fumes. Its specific gravity is from 1.9 to 2.1.

Sulphur exists more or less in all known countries, but the island of Sicily, it is thought, is the only place where it is produced on a large scale, and consequently that island appears to command the market. Small quantities have been found in the north of Italy, the Grecian Archipelago, Russia, Austria, Poland, France, Spain, eastern shores of Egypt, Tunis, Iceland, Brazil, Central America, and the United States. Large quantities are said to exist in various countries of Asia, but it is understood to be impracticable to utilize the same, consequent upon the distance from any commercial port, and the absence of rail or other roads.

Sulphur is of two kinds, one of which is of volcanic emanation, the other being closely allied to sedimentary rocks. The latter is found in Sicily, on the southern and central portions of the island. Mount Etna, situated in the east, seems to exert no influence in the formation of brimstone. There are various hypotheses relative to its natural formation. Dr. Philip Swarzenburg attributes it to the emanations of sulphur vapor expelled from metallic matter existing in the earth, consequent upon the fire in the latter, while Professors Hoffman and Bischoff ascribe it to the decomposition of sulphureted hydrogen. Hoffman believes the sulphureted hydrogen must have passed through the fissures of stratified rocks, but Bischoff is of opinion that the sulphureted hydrogen must have been the result of the decomposition of sulphate of lime in the presence of organic matter. The theory of others is that sulphur owes its origin to the combination of lacustrine deposits with vegetable matter, and others again suppose that it is due to the action of the sea upon animal remains. The huge banks of rock salt, often met with in the vicinity of sulphur mines, and which in some places stretch for a distance of several miles, seem to indicate that the sea has worked its way into the subsoil. Fish and insects, which are frequently found in strata of tripoli, which lie under sulphur beds, induce the belief that lakes formerly existed in Sicily.

The following is a list of the various strata which form part of the crust of the earth in Sicily, according to Professor Mottura, an Italian geologist:

Pliocene. — Sandstone; coarse calcareous rock; marl.

Upper Miocene. — Calcareous marl: gypsum, etc.; sulphur embedded in calcareous limestone; silicious limestone; tripoli, containing fossils of fish, insects' eggs, etc.

Middle Miocene. — Sandstone containing quartz, intercalated with marl of a saltish taste.

Lower Miocene. — Rock salt; blue marl, containing petroleum and bitumen; flintstone; ferruginous clay, mixed with aragonite and bituminous schists; ferruginous and silicious sandstone.

Eocene. — Limestone, containing diaspores and shells.

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At times one or another of the strata disappears, while the order of some is slightly reversed on account of the broken state of the crust. Upon the whole, however, the above has been generally observed in the various mines by the author referred to.

Sulphur mines have been operated in Sicily over three hundred years, but until the year 1820 its exportation was confined to narrow limits. At present the number of mines existing in Sicily is about three hundred, nearly two hundred of which, being operated on credit, are, it is understood, destined to an early demise. It is said that there are about 30,000,000 tons of sulphur in Sicily at present, and that the annual production amounts to about 400,000 tons. If this should be true, taking the foregoing as a basis, the supply will become exhausted in about seventy-five years.

In 1819 a law was passed in Italy, which is still in force, governing mining in Sicily, which provides that should a landowner discover ore in his property he would be the owner thereof, and should have the right to mine, operate, or rent the property to others for that purpose, but if he should decline to operate his mines or to rent them to others to be operated, the state would rent them on its own account.

Royalties vary from 12 to 45 per cent. They are paid according to the quality of the ore and the facilities for producing sulphur; 25 per cent. may, however, be taken as an average. There is a land tax of 36 per cent. of the net income, which is usually paid by the owners and lessees of the mines, in proportion to the quantity of sulphur which they produce. The export duty is 10 lire per ton. All mines are inspected by government officials once a year, and the owners are required to furnish the state with plans of the works and their progress, with a view to insure the safety of the workmen and to ascertain the extent of the property.

Those who rent their mines receive from 10 to 40 per cent. of the sulphur produced. Leases are valid for such period as the contracting parties may stipulate therein. The general limit, however, is nine years. The average lease is 25 per cent., 40 per cent. being paid only when the mines are very favorably situated and the production good. Some lessees prefer paying a considerable sum in cash in advance, at the beginning of the term of the lease, and giving 15 or 20 per cent. in sulphur annually thereafter, instead of a higher percentage.

The external indications of the presence of sulphur are the appearance of gypsum and sulphurous springs. These are indubitable signs of the presence of sulphur, and when discovered the process resorted to here, in order to reach the sulphur, is to bore a hole sufficiently large to admit a man, after which steps are constructed in the passage in order to facilitate the workmen in going to and fro. These steps extend across the passage, and are about 25 centimeters high and 35 broad. The inclination of the holes or passages varies from 30 to 50 degrees. Upon attaining the depth of several meters water is often met with, and in such considerable quantity that it is impossible to proceed. Hence it becomes necessary to either pump the water out or retreat in order to bore elsewhere. It is often necessary to bore several

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passages in order to discover the ore or seam of sulphur. When, however, it has been discovered the passages are made to follow its direction, whether upward or downward. As the direction of seams is in most cases irregular, that of the passages or galleries is likewise. Where the ore is rich and the matrix yielding the miners break it by means of pick-axes and pikes, but when such is not the case gunpowder is resorted to, the ore in this case being carried to the surface by boys. The miners detach the ore from the surrounding material, and the cavities which ensue in consequence assume the appearance of vast caves, which are here and there supported by pillars of rock and ore in order to keep them from falling or giving way. In order to strengthen the galleries sterile rock is piled upon each side and cemented with gypsum. In extensive mines, however, these supports and linings are too weak, and not infrequently, as a result, the galleries and caverns give way, occasionally causing considerable havoc among the miners. Sulphur is found from the surface to a depth of 150 meters. The difficulties met with in operating mines are numerous, and among the greatest in this category are water, landslides, irregularity of seam, deleterious gases, hardness of rocks and matrices. Of these difficulties water is the most frequently met with. Indeed, it is always present, and renders the constant use of pumps necessary. At one time miners were allowed to dig where they pleased so long as sulphur was extracted, the consequence being that in groups of mines, the extent and direction of which being unknown to their respective owners, one mine often fell into or upon another, thus causing destruction to life and property. It was largely for this reason, it is understood, that the government determined to require owners and lessees of mines to furnish plans thereof to proper authority, and directed that official inspection of the mines should be made at stated periods. In order to comply with the decree of the government it became necessary to employ mining engineers to draw the plans, etc., and those employed were generally foreigners. In the system of excavation described no steam power is employed. Pumping is performed by means of primitive wooden hand pumps, and when sufficient ore has been collected it is conveyed on the backs of boys to the surface—a slow, costly, and difficult procedure. This system may, however, be suitable to small mines, but in large mines there is no economy in hand labor; indeed, much is lost in time and expense by it. For this reason steam has been introduced into the larger and more important mines. The machinery employed is a hoisting apparatus, with a drum, around which a coil is wound, with the object of hoisting and lowering trucks in vertical shafts. Steam pumps serve to extract the water. The force of the hoisting apparatus varies from 15 to 50 horse power. The fuel consumed is English and French coal, the former being preferred, as it engenders greater heat. The cost of a ton of coal at the wharf is $4.40, whereas in the interior of the island it costs about $10. The shafts or pits are made in the ordinary way, great care being taken in lining them with masonry in order to guard against landslides. In level portions of the country vertical shafts are preferred, but where the mine is situated upon a hill a debouche may often be found below the sulphur seam, when an

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inclined plane is preferred, the ore being placed in trucks and allowed to run down the plane on rails until it reaches the exterior of the mine, where it suddenly and violently stops, and as a result the trucks are emptied of their load, when they are drawn up the plane to be refilled; and thus the process goes on indefinitely. In these mines a gutter is made in the inclined plane which carries off the water, thus dispensing with the necessity of a pump and the requisites to operate it. The galleries and inclined shafts are lined with beams of pine or larch, which are brought hither from Sardinia, as Sicily possesses very little timber. The mines are illuminated by means of iron oil lamps, the wicks of which are exposed. The lamps are imported from Germany. In certain cases an earthenware lamp, made on the island, and said to be a fac-simile of those used by the Phœnicians, is employed. This lamp is made in the shape of a small bowl. It is filled with oil and a wick inserted, which hangs or extends outward, and is thus ignited, the flame being exposed to the air. Safety lamps are unknown, and those described are generally secure. Few explosions take place—only when confined carbonic hydrogen is met with in considerable quantities, and when the ventilation is not good. In this case the mine is easily ignited, and once on fire may burn for years. The only practical expedient for extinguishing the fire is to close all inlets and outlets in order to shut off the air. This, however, is difficult and takes time. Notwithstanding the closing of communications, the gasses escape through the fissures and openings which obtain everywhere, and the ingress of air makes it next to impossible to extinguish the fire; hence it burns indefinitely or until the mine is exhausted. Occasionally the burning of a mine results beneficially to its owners, in that it dispenses with the necessity of smelting, and produces natural, refined sulphur.

Galleries in extent are usually 1.20 by 1.80 meters, and when ore is not found and it becomes necessary to extend the galleries laborers are paid in accordance with the progress they may make, and the character of the rock, earth, etc., through which it may be necessary to cut, as follows:

Silicious limestone, 60 lire per meter; daily progress, .20 meter.
Gypsum, 50 lire per meter; daily progress, .30 meter.
Marl, 30 lire per meters: daily progress, .50 meter.
Clay, 15 lire per meter; daily progress, 1 meter.

Laborers working in the ore are paid 4.30 lire per ton. This includes digging, extracting, and illumination. In some mines, however, the laborers are paid when the sulphur is fused and ready for exportation. One ton of sulphur, or its equivalent (say from 40 to 50 lire), is the amount generally paid. In mines where this system obtains the administration is only responsible for their maintenance. Each miner produces on an average about 1½ tons of ore daily, and when the works are not more than 40 meters in depth he employs one boy to assist him, two boys when they reach 60 meters, and three when under 100 meters. These boys are from seven to sixteen years of age, and are paid from .85 to 1.50 lire per day by the miner who employs

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them. They carry from 1,000 to 1,500 pounds of ore daily, or in from six to eight hours. The food consumed by miners is very meager, and consists of bread, oil, wine, or water; occasionally cheese, macaroni, and vegetables are added to the above.

Mining laborers generally can neither read nor write, and when employed in mines distant from habitations or towns, live and sleep therein, or in the open air, depending on the season or the weather. In a few mines the laborers are, however, provided with suitable dwelling places, and a relief fund is in existence for the succor of the families of those who die in the service. This fund is greatly opposed by the miners, from whose wages from 1 to 2 per cent. is deducted for its maintenance. In the absence of a fund of this character the sick or infirm are abandoned by their companions and left to die. Generally miners are inoffensive when fairly dealt with. They are said to be indolent and dishonest as a rule. The managers of mines receive from 3,000 to 5,000 lire per annum; chief miners from 1,500 to 2,500 lire; surveyors, 700 to 1,000 lire, and weighers and clerks from 1,000 to 2,000 lire per annum. The total number of mining laborers in Sicily is estimated at about 25,000.

The ore for fusion of the first grade as to yield contains from 20 to 25 per cent. of sulphur, that of the second grade from 15 to 20 per cent., and of the third grade 10 to 15 per cent. The usual means adopted for extracting sulphur from the ore is heat, which attains the height of 400 degrees centigrade, smelting with the kiln, which in Sicilian dialect is called a "calcarone." The "calcarone" is capable of smelting several thousand tons of ore at a time and is operated in the open air. Part of the sulphur is burned in the process of smelting in order to liquify the remainder. "Calcaroni" are situated as closely to the mouth of a shaft as possible, and if practicable on the side of a hill, in order that when the process of smelting is complete the sulphur may run down the hill in channels prepared for the purpose. The shape of a "calcarone" is circular, and the floor has an inclination of from 10 to 15 degrees. A design of a "calcarone" is herewith enclosed. The circular wall is made of rude stone work, cemented together with gypsum; the thickness of the wall at the back is 0.50 meters, and from this it gradually becomes thicker until in front, where it is 1 meter, when the diameter is to be 10 meters. In front the thickest part of the wall an opening is left, measuring 1.20 meters high and 0.25 meters broad. Through this opening the liquid sulphur flows. Upon each side of this opening two walls are built at right angles with the circular wall, in order to strengthen the front of the kiln. These walls are 80 centimeters thick each and are roofed. A door is hinged to these walls, thus forming a small room in front of each kiln in which the keeper thereof resides from the commencement to the termination of the flow of sulphur. The inclined floor of the kiln is made of stone work and is covered with "ginesi," the name given to the refuse of a former process of smelting. The stone work is 20 centimeters thick, and the "ginesi" covering 25 centimeters, which gradually becomes thicker as it approaches its lowest extremity. The front part of the circular wall is 3.50

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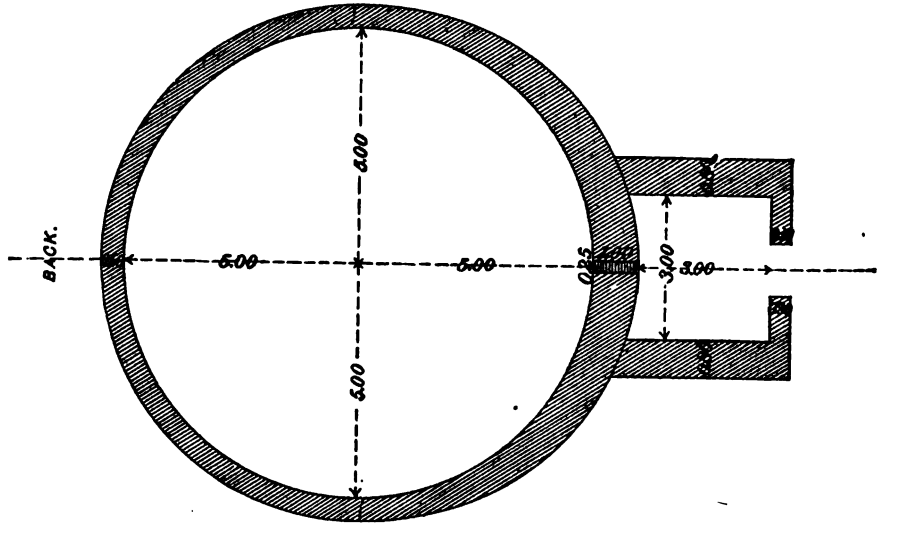
meters high and the back 1.80 meters. The interior of the wall is plastered with gypsum in order to render it impereamable. The cost of a "calcarone" of about 500 tons capacity is 800 lire. The capacity varies from 40 to 5,000 tons, or more, depending upon circumstances. If a mine is enabled to smelt the whole year round the smaller "calcaroni," being more easily managed, are preferred; the inverse is the case as to the larger "calcaroni," when this



is impracticable. When a "calcarone" is situated within 100 meters of a cereal farm its operation is prohibited by law during the summer, lest the fumes of the sulphur should destroy the crop. When, however, the distance is greater from the farm or farms than 100 meters smelting is permitted; but should any damage ensue to the crops as a result of the fumes, the owners of the "calcaroni" are required to liquidate it. Therefore, the mines which are favorably situated smelt the entire year, and employ "calcaroni" of from

40 to 500 tons, as there is less risk of a process failing, which occasionally happens, and for the reason that the ore can be smelted as soon as it is extracted, whereas, when kilns or "calcaroni" are situated within or adjacent to the limit adverted to, they can only be operated five or six months in the year, consequent upon which the ore is necessarily stacked up all through the summer or until such time as smelting may be commenced without endangering the crops, when it becomes necessary to use "calcaroni" whose capacity amounts to several thousand tons. As intimated these large "calcaroni" are not so managable as those of smaller dimensions, and as a result many thousands of tons of sulphur are lost in the process of smelting, besides perhaps the loss of an entire year in labor. Again the ore deteriorates or depreciates when long exposed to the air and rain, all of which, when practicable, render the kilns or "calcaroni" of the smaller capacity more advantageous and lucrative to those operating sulphur mines in Sicily. Smelting with a "calcarone" of 200 tons capacity consumes thirty days. One of 800 tons, 60 days, and with a "calcarone" of 2,000 tons capacity from 90 to 120 days are consumed.

In loading or filling the "calcaroni" the larger blocks of ore are placed at the bottom as well as against the mouth, in order to keep the lower part of the kiln as cool as possible with a view of preventing the liquid sulphur from becoming ignited as it passes down to where it makes its exit, etc. The blocks of ore thus first placed in position are for obvious reasons the most sterile. After the foundation is thoroughly laid the building of the "pile" is proceeded with, the larger blocks being placed in the center to form as it were the backbone of the pile, the smaller blocks of ore are arranged on the outside of these and in the interstices. The shape or form of the pile when completed is similar to a truncated cone, and when burning the kiln looks like a small volcano. When the kiln has been filled with ore the whole is covered with ginesi with a view of preventing the escape of the fumes. The ore is then ignited by means of bundles of straw, impregnated or saturated with sulphur, being held above the thin portion of the top of the kiln, which is at once closed with ginesi and the "calcarone" is left to itself for about a week. During the burning process the flames gradually descend and the sulphur contained in the ore is melted by the heat from above. In about seven or eight days sulphuric fumes and sublimed sulphur commences to escape, when it becomes necessary to add a new coat of ginesi to the covering and thus prevent the destruction of vegetation by the sulphur fumes. The mouth of the kiln, which has been left open in order to create a draft, is closed up about this time with gypsum plaster. When the sulphur is all liquified it finds its way to the most depressed part of the kiln and there, upon encountering the large sterile blocks, quite cold, already referred to, solidifies. It is again liquified by means of burning straw, whereupon an iron trough is inserted into a mouth made in the kiln for the purpose, and the reliquified sulphur runs into it, from which it is immediately collected into wooden moulds, called "gadite," and which have been kept cool by being submerged in water. Upon its becoming thoroughly cool the sulphur is taken out of

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the moulds referred to, and is now in solid blocks, each weighing about 100 weight. Two of these blocks constitute a load for a mule, and cost from 4 to 5 francs.

The above is the result when the operation succeeds; but this is not always the case. At times the sulphur becomes solidified before it reaches the mouth of the kiln, because of the heat not being sufficient to keep it liquid in its passage thereto, and other misfortunes not within control, and consequent upon the use of the larger kilns, or "calcaroni."

When the sulphur ceases to run from the kiln the process is complete. The residue is left to cool, which consumes from one to two months. The cooling process could be accomplished in much less time by permitting the air to enter the kiln, but this would be destructive to vegetation, and even to life, consequent upon the fumes of the sulphur. The greatest heat at a given time in a kiln is calculated to be above 650 degrees centigrade — that is, at the close of the process. This enormous heat is generally allowed to waste, whereas it is understood it could be utilized in many ways. A gentleman by the name of Gill is understood to have invented a recuperative kiln, which will, if generally adopted, utilize the heat of former processes named. A ton of ore containing about 25 per cent. of sulphur yields 300 pounds of sulphur. This is considered a good yield. When it yields 200 pounds it is considered medium, and poor when only 75 pounds. Laborers are paid .40 lire per ton for loading and unloading kilns, and from thirty to forty hands are employed at a time. The keeper of a kiln receives from 2 to 2.50 lire per day.

Notwithstanding the "calcarone" has many defects it is the simplest and cheapest mode of smelting, and is preferred here to any other system requiring machinery and skilled labor to operate it.

The following are the principal furnaces in use here: Durand's; Hirzel; Gill and Kayser's System of Fusion; Conby Bollman Process; Thomas Steam Process of Smelting, and Robert Gill's Recuperative Kilns.

There are seven qualities or grades of sulphur, viz:

1. Sulphur almost chemically pure, of a very bright and yellow color.

Second Best. — Slightly inferior to the first quality; bright and yellow.

Second Good. — Contains 4 to 5 per cent. of earthy matter, but is of a bright yellow.

Second Current. — Dirty yellow, containing more earthy matter than that last named.

Third Best. — Brownish yellow; this tint depends on the amount of bitumen which it contains.

Third Good. — Light brown, containing much extraneous matter.

Third Current. — Brown and coarse.

These qualities are decided by color, not by test. The difference of price is from 3 to 10 francs per ton. Manufacturers prefer the Third Best, because of its containing more sulphuric acid and costing less than the sulphur of better quality.

Sulphur is conveyed to the seaboard by rail, in carts, or on mules or donkeys. Conveyance by cart, mule, or donkey is only resorted to when the

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distance is short or from mines to railroad stations. The tariff in the latter case is understood to be 1 lire per ton per mile. The railroad tariff is .12 per ton per kilometer; but it is contemplated, it is understood, to reduce this to 7 centimes in a short time. The price per ton of sulphur is as follows:

Grade.	At Porto Empedocle.	At Licata.	At Catania.
	Lire.	*Lire.*	*Lire.*
Second best	86.60	87.00	90.70
Second good	84.42	84.50	90.30
Second current	83.90	83.90	88.40
Third best	79.00	79.90	86.90
Third good	77.80	77.80	83.00
Third current	76.80	76.70	.....

Sulphur free on board, brokerage, shipment, export duty, and all other expenses included, costs 20 lire per ton in excess of the above prices. Nearly all the sulphur exported from Palermo emanates from the Lercara mines, in the Province of Palermo, the price per ton being as follows: first quality, 91.60 lire; second quality, 88.40. Sulphur is usually conveyed in steamers to foreign countries from Sicilian ports. The average freight per ton to New York is about as follows: From Palermo, 8.70 lire; from Catania, 13.50 lire; from Girgenti, 16 lire. An additional charge of 2.50 lire is made when the sulphur may be destined for other ports in the United States.

Liebig once said that the degree of civilization of a nation and its wealth could be seen in its consumption of sulphuric acid. Now, although Italy produces immense quantities of sulphur, it cannot, on account of the scarcity of fuel, and other obvious reasons perhaps, compete with certain other countries in the manufacture and consumption of sulphuric acid.

Sulphur is employed in the manufacture of sulphuric acid, and the latter serves in the manufacture of sulphate of soda, chloridic acid, carbonate of soda, azodic acid, ether, stearine candles, purification of oils in connection with precious metals and electric batteries. Nordhausen's sulphuric acid is employed in the manufacture of indigo. Sulphate of soda is employed in the manufacture of artificial soda, glassware, cold mixtures, and medicines. Carbonate of soda is used in the manufacture of soap, bleaching wool, coloring and painting tissues, and in the manufacture of fine crystal ware, and the preparation of borax. Chloric acid is used in the preparation of chlorides with bioxide of manganese, and with chlorides in the preparation of hypochlorides of lime, known in commerce under the name of bleaching powder, and improperly called chloride of lime, which is used as a disinfectant in contagious diseases, in bleaching stuffs, and in the manufacture of paper from vegetable fibers, and in the manufacture of gelatine extracted from bones, as well as in fermenting molasses, and in the manufacture of sugar from beet-root. Sulphur is also used in the preparation of gunpowder, and oil of vitriol, and in the manufacture of matches, and cultivation of the vine.

In the year 1838 the Neapolitan government granted a monopoly to a

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French company for the trade in sulphur. By the terms of the agreement the producers were required to sell their sulphur to the company at certain fixed prices, and the latter paid the government the sum of $350,000 annually in consideration of this requirement. This, however, was not a success, and tended to curtail the sulphur industry, and the government, discovering the agreement to be against its interests, annulled it, and established a free system of production, charging an export tax per ton only. At that time sulphuric acid was derived exclusively from sulphur. Hence the demand from all countries was great, and the prices paid for sulphur were high. It was about this period that the sulphur industry was at its zenith. The monopoly having been abolished, every mine did its utmost to produce as much sulphur as possible, and from the export duty exacted by the government there accrued to it a much larger revenue than that which it received during the period of the monopoly. The progress of science has, however, modified the state of things since then, as sulphur can now be obtained from pyrite or pyrite of iron. This discovery immediately caused the price of sulphur to fall, and the great demand therefor correspondingly ceased. In England, at the present time, it is understood that two-thirds of the sulphuric acid used is manufactured from pyrites. The decrease in prices caused many of the mines to suspend operations, and as a result the sulphur remained idle in stock. In 1884 an association was formed at Catania with a view to buying up sulphur thus stored away at the mines and various ports at low prices. and store it away until a favorable opportunity should present itself for the sale thereof. This had the effect of increasing the prices of sulphur in Sicily for some time, and the producers, discovering that the methods of the association increased the foreign demand for their produce as well as its prices, exported it directly themselves, thus breaking up the association referred to, as it was no longer a profitable concern.

The railroad system, which in later years has placed the most important parts of Sicily in communication with the seaboard, has been most beneficial to the sulphur industry. A great saving has been made in transporting it to the ports. This was formerly (as stated) accomplished by carts drawn by mules at an enormous expense, as the roads were wretched, and unless some person of distinction contemplated passing over them repairs were unknown.—PALERMO, *March 20, 1888.*

PHILIP CARROLL,
Consul.

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TRADE OF MADAGASCAR.

Inclosed are returns of trade export and import between the United States and Madagascar for the year ending June 30, 1887, together with the number of arrivals and departures of American vessels at the port of Tamatave for the same period.

In obtaining information for this report on the trade between the United States and other countries with Madagascar I have met with many delays and disappointments in awaiting the completion of reports and returns from the custom house authorities. Hitherto there has been no account ever kept at the custom house, or if there has been no one has ever seen them, as no statistics of trade or amount of revenues collected at the customs were ever published.

It will be remembered that on January 24, 1887, the Hova Government transferred to the "Comptoir d'Escompte de Paris," as security for the payment of the interest on the loan of 10,000,000 francs borrowed from that bank, in order to pay the war indemnity, the following named custom houses: Tamatave, Majunga, Vatomandry, Vohmah, Faeneara, and Mananzary. Therefore I am only able to give the general return of trade with all other countries, except the United States, from January 24, 1887, to June 30, 1887.

In an enclosure is given the entire American import trade with Madagascar for the year ended June 30, 1887. But in order to be able to compare proportionately our trade with other nationalities, I also incorporate in this dispatch the return of American trade for the five months dating from January 24, 1887, to June 30, 1887.

I am very much indebted to the courtesy of Monsier Ollivier, the representative of the "Comptoir d'Escompte de Paris," and the comptroller of customs at this port for the information contained in this report.

American trade with Madagascar holds its own, and in the matter of exports there is no doubt an increase.

The exports to America are principally hides and india-rubber. For the year ended June 30, 1887, the exports to the United States amounted to $200,722.54, and for the previous year to $171,723.15, showing an increase for 1887 of $28,979.39.

An enclosure shows the imports from the United States during the same year to be $351,865.50, consisting chiefly of unbleached and bleached cotton cloth, kerosene oil, and some flour. The whole year's trade amounted to $552,588.04. This may be considered a good showing for American commerce for the year ended, for there has hardly ever been a worse year for trade than the present one, resulting from the very unsettled state of the country, brought about from the effects of a three years' war.

Of the whole amount of imports from all nations trading with Madagascar for the half year commencing January 24, 1887, to June 30, 1887, to the value of $274,608.17, we find that nearly two-thirds, or $167,357, came

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under the head of cotton fabrics, showing these to be the staple import articles of Madagascar trade.

With regard to the nation that does the most trade with Madagascar, we have only to turn to the most important article of import, viz., unbleached cotton cloth, and we find American imports nearly double those of all other nations put together, having landed $63,000 worth during the five months from January 24, 1887, to June 30, 1887.

This showing ought to be very satisfactory to our American manufacturers of cotton fabrics, inasmuch as unprincipled competitors of another manufacturing country, in their race to control the trade of Madagascar, have stopped at nothing in their efforts to palm off upon this market an inferior quality of cloth, manufactured from a very unclean and low grade cotton, and got up in a style to imitate as closely as possible the American cloth, they even going so far as to brand their starched-up imitations with American emblems.

The natives of the country are as good judges of the texture of American cloth as any economical American housewife.

Hardware is the next important article of import, showing $24,637, or about $50,000 a year. Of this article, during the above named six months, France has furnished $12,416, England $6,980, and Germany $5,980.

For the five months from January 24, 1887, to June 30, 1887, rum imported here from Mauritius, and included in the sum given under the head of English imports, amounted to $11,421.22. America *does not send* even a pint of rum into the country, and indeed very little comes from any other parts, which is not to be regretted, for the supply is more than abundant so far as it affects the manners and morals of the poor natives.

The rice imported from Mauritius during the same time, and also included under the head and in the amount of English imports, amounted to $9,437.35. Besides rum and rice, there was also imported from Mauritius during the same period claret or red wine to the amount of $4,920.38. The red wine sent from Mauritius here is almost entirely the produce of Italian vineyards.

Taking the rum, rice, and red wine imported from Mauritius, we find that these three articles alone amount to $25,778.95, which goes a long way in swelling the amount of the $116,946.30 of declared imports as given under the heading of English importations to Madagascar. Deduct the Mauritius trade from the given returns of English imports, and if we include many other articles of merchandise sent here from our neighboring island, Mauritius can claim more than one-half the imports given in the English returns of imports to Madagascar.

France has imported during the same period the sum of $58,669.87, consisting of silks, hardware, wines and liquors, and different tissues.

Germany comes next, for the same time importing $27,262.91, consisting principally of beer, hardware, American cloths, and German specialties.

The returns placed under the head of Danish importations is rum brought here from Mauritius in a steamer carrying the Danish flag since the Franco-

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Malagassy war, but belongs to Mauritius merchants, and is virtually Mauritius trade. The same steamer returns freighted with beef cattle for the Mauritius and Reunion markets. Both these islands depend wholly upon Madagascar for their beef supplies.

Thus, for the five months from January 24, 1887, to June 30, 1887, it is seen that the total imports to Tamatave amounted to $274,608.17, the United States in one article alone importing $65,815.15.

EXPORTS.

Turning to the exports from January 24, 1887, to June 30, 1887, we find they have exceeded in value the imports by $12,538.34. Hides stand far above every other produce—in fact, very nearly equal in value all the other produce put together, viz., $124,389; india-rubber comes next, showing $81,852. These are the two commodities principally exported to the United States. Rafia fiber comes third at $81,000. Of this fiber France has imported 504,382 pounds, costing $25,219.10; England, 187,500 pounds, costing $9,275; Germany, 40,000 pounds, costing $2,000. The export of Rafia fiber to Europe is increasing every year, and it is now an important one. Small quantities of this fiber have at times during the last five years been shipped to the United States, but for some reason, unknown here, there appears to be no demand for it in the American market. At present the fiber is selling here at $4 per 100 pounds; six months ago it brought as high a figure as $5 per 100 pounds. In October last the fiber sold in France at $6.50 per 100 pounds. Why this produce could not find a ready and profitable market in the United States I am at a loss to conjecture.

Perhaps our merchants and manufacturers have not as yet given any consideration to the uses to which the fiber is appropriated in Europe. It is used exclusively in France by the vintagers of the country for tying vines.

Since the disease among the vines made its appearance and spread itself so generally throughout the vineyards of France, causing so much damage to the plants, the French vintagers, in order to arrest the further spread of the disease and to prevent the entire destruction of the vines, have found it expedient to cut off the diseased part of the plant, and to engraft into the healthy portion of the stem fresh cuttings. The new cuttings are principally imported from America, and to a very great extent from California.

The Rafia fiber is manufactured in France into a cord or twine, and being of a vegetable substance it is found to be better adapted for binding the vines that have other materials generally used in the manufacture of cordages, as it resists exposure to the weather better than other substances, and is less liable to suffer from rot.

The export of oxen to Mauritius and Réunion for the same period amounted to $13,000; hogs and straw hats (the latter, manufactured by the natives, somewhat resembling in texture the Panama hat worn in the United States) dispute the next place. There is no other article of export worthy of mention.

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Of the exports the hides go chiefly to America, the Rafia fiber almost entirely to France, while bullocks are sent exclusively to Réunion and Mauritius.

NAVIGATION.

Turning to the shipping we see that during the year from June 30, 1886, to June 30, 1887, there were eight American merchant vessels entered and cleared from the port of Tamatave, bearing a tonnage of $4,739\frac{84}{100}$ tons, and one man-of-war, the *Alliance*. I am only able to give the returns of our own merchant marine for the whole year, from June 30, 1886, to June 30, 1887. The returns of navigation for other nationalities will be from January 24, 1887, to June 30, 1887.

During the above period 91 vessels entered the port of Tamatave, of which 14 were French, 65 sailing under the English flag, and the remainder of other nationalities. The tonnage of the French vessels, however, shows more than double that of the English, the 14 French vessels giving a tonnage of 19,209, while the 65 carrying the English flag show only 7,322 tons, or a few tons more than that registered of the 8 American vessels. Nearly all the English vessels entering this port are small trading vessels plying between the port of Tamatave and Mauritius, and are owned by masters or merchants of that island.

This is the first year in the history of Tamatave and Majunga as sea ports known to the civilized world that any one has been able to tell what these ports were worth to the Hova Government. The duties collected at Tamatave alone from December 5, 1886, to December 5, 1887, amounted in round numbers to 420,000 francs, or in American coin to $84,000. This may be considered a very low estimate when we take into account the dullness of trade following the conclusion of a three years' war. The next port of importance is Majunga, on the west coast. The duties collected at that point during the same period amounted to 47,000 francs, or $9,400. All the other ports of the island are of less value to the Government in the amount of revenue collected.

Statement showing the imports at Tamatave from January 24 to June 30, 1887.

Description.	Value.	Countries whence imported.
Cotton cloth, kerosene oil, and flour	$65,815 15	United States.
Hardware, silks, different tissues, wine and liquors	58,669 87	France.
General merchandise, including the trade of Mauritius	116,946 35	England, including Mauritius.
Hardware, beer, and American cotton cloths	27,262 91	Germany.
Merchandise	5,860 97	Denmark.*
Merchandise	52 92	Austria.
Total	$274,608 17	

* Denmark, although given in the returns of trade, imports nothing here. The merchandise classed as imported from Denmark is brought from Mauritius in a steamer carrying the Danish flag since the Franco-Malagassy war, and is virtually English or Mauritius trade, as it is included in the amounts under the head of English importations.

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Statement showing the imports at Tamatave for the year ending June 30, 1887.

Description.	Quantity.	Value.	Countries whence imported.
6,717 bales unbleached cotton cloth.....yards...	6,044,000	$332,500 00	United States.
66 cases bleached cotton cloth..... " ...	97,290	7,770 00	" "
33 cases prints ..... " ...	68,000	5,157 00	" "
3,343 cases kerosene oil .....gallons.	37,450	2,996 00	" "
500 barrels flour.....	.....	2,500 00	" "
1,400 shooks.....	.....	840 00	" "
55 boxes soap..... .....pounds..	.....	27 50	" "
150 deals.....	670	74 00	" "
Total.....	.....	$351,865 50	

Statement showing the exports from Tamatave from January 24 to June 30, 1887.

Description.	Value, including charges.	Countries whither exported.
Dry salted hides, and india-rubber.....	$117,248 12	United States.
Wax, rafia, rabanes, and hides.....	84,099 70	France.
Wax, rafia, and hides	37,225 78	England.
Hides, rafia, and rabanes	28,474 65	Germany.
Cattle and other merchandise for Mauritius *.....	20,098 26	Denmark.
Total	$287,146 51	

* Sent in a steamer carrying the Danish flag and returned under the head of Danish exports.

Résumé of the different exports from Tamatave from January 24 to June 30, 1887.

Description.	Quantity.	Countries whither exported.
Wax .....pounds..	121,677	France and England.
India-rubber. ..... "	164,265	America, France and England.
Goum copal..... "	16,333	France and Germany.
Rafia ..... "	731,882	France, Germany and England.
Rabones.....prices....	23,137	France and England.
Dry salted hides.....	59,847	America, France and Germany.
Sheep-skins	36,467	America, France and England.
Beef cattle.....head....	1,169	Meritius and Burbon.
Straw hats manufactured by the natives	3,794	France and England.

The above are the principal commodities exported from Madagascar.

Statement showing the navigation at the port of Tamatave from January 24 to June 30, 1887, except for American vessels, which is for the year ending June 30, 1887.

Nationality of vessels.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
American.....	8	4,739 AA/100	8	4,739 AA/100
French.....	14	19,209	15	15,494
English.....	65	7,322	72	7,271
German.....	4	1,492	4	1,471
Danish.....	3	1,836	1	1,836
Austrian.....	1	84	1	84
Total.....	95	34,682 AA/100	101	30,895 AA/100

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The arrivals and departures of American vessels are given for the year ending June 30, 1887. The arrivals and departures of vessels of other nationalities are only given from January 24, 1887, (the date on which the custom house passed into the hands of the French), to June 30, 1887, and as they are not classified under the head of steam or sailing vessels, the number and tonnage are given in the aggregate.

By the above statement you will perceive that during the five months from January 24, 1887, to June 30, 1887, there were entries at this port of 6 vessels carrying the English flag with only a tonnage of 7,322 tons, this includes the steamer carrying the mail from the Cape of Good Hope here. There were during the same time 72 departures of vessels carrying the English flag with a tonnage of 7,271 tons. The greater number of English arrivals and departures are small vessels trading between this port and Maritime, and given under the head of English navigation. You will also see that during the same period there were 14 arrivals and 15 departures of French vessels with the aggregate tonnage of arrivals and departures of 34,703 tons. This amount includes the large mail steamer arriving here monthly.

TAMATAVE, *December 12, 1887.*

JOHN P. CAMPBELL,
Consul.

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CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC

No. 93.—MAY, 1888.

AMERICAN PORK IN SWEDEN.

In a bill now before the Swedish Diet, at Stockholm, called the industrial tariff bill, the object of which is to revise the tariff on a protection basis in regard to Swedish trade and labor, an important item in the provision schedule, imposing a duty on American pork, has passed both chambers of the Diet. The duty has been fixed at 25 öre (6.7 cents) on smoked pork, and 20 öre (5.36 cents) on all other pork per kilogram (2.2046 pounds avoirdupois), which is so heavy that its undoubted effect will be to prohibit the importation, which at this port alone has averaged about three thousand tons per annum.

ERNEST A. MAN,
Consul.

Extract from the debate on the item of the Industrial Tariff Bill regarding American pork in the first chamber of the Swedish Diet, at Stockholm, April 19, 1888.

MR. DICKSON.—If the Diet, through the introduction of a duty upon breadstuffs a short time since, increased the cost of living for the poor, it would seem to be still further adding to the burden by its present proposition. The bill appears as a protection to all Swedish trade and labor; but if there is anything in Sweden which needs protection it is the physical strength of the Swedish workingman! And what compensation does this bill offer the laborer for the food it now proposes to make more expensive for him? For my part, I find such a proposition as this present one exceedingly unjust and disquieting, and distinctly offer it my opposition. Besides, there can not be found the least reason to lay a duty on American pork, as there is certainly no Swedish industry which, in the past decade, has advanced so rapidly as swine raising.

MR. FORSSMAN did not think it advisable to make a different duty for smoked and other pork; also found the proposed duties too high. He was opposed to the measure because it would not only affect the working people, but the indigent classes as well. He would not have given the least sympathy to the question had he not heard from reliable quarters that Sweden could produce sufficient pork for its own consumption. As this was highly desirable he had joined the protectionists, but did not approve of so high a duty as proposed. As many inconveniences would arise through the two different duties, he would suggest that all pork should be subjected to a duty of 15 öre per kilogram.

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BARON BARNEKOW said that one of the main reasons for Germany, Denmark, and other countries excluding American pork from their lists of permitted imports was the great prevalence of swinepest in America, which made the article dangerous to health. He also thought that Sweden could easily produce all the pork needed at home, and more; and disputed the fact that a duty here would increase the price, as some have stated it had done in Germany.

Mr. HEDLUND.—If there is a measure calculated to call up bad feeling it is certainly this. The duty in question would exclusively affect the poorest classes. The other articles in this tariff more or less concern all classes of society; but a duty on American pork necessarily falls upon that portion of the people possessed of the least means.

Baron Klinckomstrom invited Mr. Hedlund to a further discussion of the subject and endeavored to show by statistics that the free-trade assertion, that protective duties increased the price of wares, had not been verified by subsequent events in Germany.

Mr. ALMÉN said a few words because he had heard sanitary questions brought into the discussion. Abroad they certainly had laid an embargo on American pork, but that was by no means owing to sanitary reasons. There was much humbug in these sanitary arguments, as they were an excellent resource when everything else failed. There was never any certainty that the swinepest could harm human beings, and to let empty guesses influence the direction of taxation could not be right. To procure cheap food for the poor was much more important than most so-called sanitary measures. As to American pork it could not be denied by any one that it was a positive necessity to the working man, as the Swedish pork could not replace it on account of its especial characteristics, such as superior fatness, etc. One should be careful not to drive the matter so far that the Swedish workman would be obliged to seek his cheap American pork on the other side of the Atlantic.

Mr. CARLBERG approved the measure on the ground, among others, that American pork brought a higher price in the market than Swedish, and if the working people in spite of that insisted upon eating it their condition could certainly not be so bad as several speakers had represented.

Mr. EKMAN declared the protectionists' assertions that tariff duties helped industries without increasing the price of wages to be some sort of sorcery. If only the duties are imposed, they say, no one would have reason to complain. It is impossible that the introduction of taxation on the necessaries of life can produce such a wonderful result. I know of at least one case where the opposite has been the result. As every one knows, agriculture is at present in a very unprofitable condition, not only in our own, but in many other countries. In one branch, in which I am interested, it has, as a consequence, been necessary to pay very low wages to the workmen, as the producers themselves received low value for their goods. The workmen were contented with small wages, because they knew that their employers could not give them more. But the speeches of the protectionists reached even them, with their specious promises that should the tariff bill go through wages would rise, and when, therefore, the price of flour increased about 30 öre a pound, they came up and demanded that their wages should be increased. As our condition, however, had not improved, we were obliged to deny their request, and one can hardly blame them for leaving us for America. To judge from this example, a similar emigration, a thousand fold increased, may confidently be looked for if the Diet continues to add to the cost of living. I agree, therefore, heartily with those who think that the proposed tariff will create great dissatisfaction. It has further been said that American pork is dearer than the Swedish article, but as it contains more nutritive qualities, it is on the whole cheaper. The proper way to find a market for our pork is not to seek it among our working population, but among those of better means and abroad.

Mr. BEXELL thought that a too low tariff was the cause of the great emigration, and expressed a view that the Swedish teachers, especially in the public schools, were implanting unpatriotic ideas in the minds of the Swedish youth.

The item imposing a duty of 25 öre ($0.67.7) on smoked pork and 20 öre ($0.05.36) per kilogram (2.2046 lbs. avoirdupois) on all other pork was then passed, by a vote of 68 ayes against 55 nays. It likewise passed the Second Chamber by a vote of 134 ayes against 77 nays.

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TARIFF CHANGES IN THE BAHAMAS.

I have to inform you that by an act of assembly passed during the recent session of the colonial legislature the following articles have been placed on the free list, and can hereafter be imported into the colony without the payment of any duties, viz: "Steam-launches, barrels, half barrels, and other packages to be used for packing any article whatever; also staves, heads, and hoops used in the construction of barrels, half barrels, and other packages for the packing of any article whatever; also crate ends and laths." The article of hemp, which has been heretofore free of duty, will be subject on importation to a duty of 20 per cent. ad valorem after this date. —NASSAU, N. P., *April 28, 1888.* THOMAS J. McLAIN, JR.

Consul.

COMMERCIAL AFFAIRS IN HAWAII.

The year 1887 was an eventful one in the life of the Hawaiian Islands. The recuperation from the great fire disaster of 1886, the uncertainty regarding the extension of the reciprocity treaty with the United States, and the ebulition of popular discontent with the management of public affairs, culminating in June last in a semi-revolution—all contributed to produce feelings of distrust and uncertainty in the future of the islands, that militated greatly against the rapid progress which marked their course during the few years previous. These discouraging elements were felt to a greater extent in the local stocks, and trade, in rents, and in transactions in real estate. There was reduction everywhere, and investors were few. The population represented by the white race, including Portuguese, was considerably reduced, although the statistics show that there were 903 more immigrants than emigrants during the year. The arrival of European and American whites numbered 1,801, and the departures 2,454, showing a loss of white population to the islands, including Portuguese, of 653. The largest percentage of increase was Japanese, being 1,353 arrivals against 95 departures. The Chinese exodus was about equal to the immigration. It will thus be seen that the Japanese influx alone is responsible for the excess of immigration over emigration. They were brought in upon contracts for labor on the sugar plantations, and at present seem to be the favorite workers with the planters. The Portuguese decline to renew their contracts, and are leaving for the United States as rapidly as they can raise the funds to pay their passage, 653 having left the islands during the year. This exodus has been a disappointment to the Government and planters, as it was believed that they would renew their contracts, and become the permanent labor element in the country. The plantation work does not suit them, they refuse to re-contract, and the opportunities for making an independent livelihood do not exist.

The total value of exports and imports of merchandise during the year amounted to $14,473,288, as against $15,335,024 for 1886, showing a decrease of $861,736. The total exports, foreign and domestic, were $9,529,447, showing a decrease from that of 1886 of $927,838. The total

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imports of merchandise were $4,943,840, as against $4,877,738 during the preceding year, showing an increase of $66,102. The excess of value of exports over imports for the year was $4,585,606, being a falling off $877,030 as compared with the preceding year.

During the year the specie imports were $900,353, as against $1,138,571 for the previous year. Bank exchange amounted to $9,438,906.12.

The amount of sugar exported was 212,763,647 pounds. In 1886 it was 216,223,615 pounds. The slight decrease was not on account of reduction of acreage, but of dry weather at several of the plantations.

Of the total value of exports and imports $13,138,916, or 90.79 per cent., were to and from the United States; Great Britain, $661,540, or 4.58 per cent.; Germany, $184,561, or 1.27 per cent.; Australia and New Zealand, $163,001, or 1.12 per cent.; from all other countries, $56,544.

The number of Hawaiian vessels engaged in commerce was 57, with a tonnage of 12,244—one vessel less than in 1886. The total tonnage of foreign vessels entered at Hawaiian ports during the year was 198,459, apportioned as follows: American, 118,847; British, 20,040; German, 4,930; and 7,599 of other nations.

The duties on imports during the year were $595,002, against $580,444 the preceding year, an increase of $14,558. The duties on spirits amounted to $247,023, or 42 per cent., and upon merchandise $174,012, or 29 per cent.; from all other sources, $173,966, or 29 per cent. As compared with 1886 it shows an increase of $20,901 on merchandise, and a decrease of $34,726 on spirits. The value of opium imported was $129,133.59.

The sugar trust, and the promise of the immense experiment in the production of beet sugar, have had a somewhat depressing effect upon sugar stocks, although it is believed that our planters' association has joined the pool. This, however, does not include Spreckels & Co., who control one-third of the sugar on the islands.

The following table shows the domestic exports for the year 1887:

Articles.	Quantity.	Value.
Sugar.....pounds....	212,763,647	8,694,964 07
Rice..... "	13,684,200	554,294 55
Wool..... "	75,911	7,010 00
Tallow..... "	56,713	1,121 20
Awa..... "	9,636	1,031 82
Coffee..... "	5,300	972 00
Taro flour..... "	1,840	133 60
Paddy..... "	400	10 00
Bananas.....bunches...	58,938	54,703 25
Molasses.....gallons....	71,222	10,522 76
Hides.....pieces.....	28,639	96,850 61
Goat skins..... "	16,233	7,357 72
Sheep skins..... "	6,871	849 63
Calf skins..... "	82	55 09
Betel leaves.....boxes.....	741	1,469 00
Sundries.....	.....	3,858 82
Total.....	.....	$9,435,294 12

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The following table shows the imports into the Hawaiian Islands during the year 1887:

Articles.	Value of goods paying duty.	Value of goods free by treaty.	Value of goods in bond.	Value of goods free by code.	Total.
Ale, porter, beer, cider	55,951 13		20,032 95		75,984 08
Animals and birds	540 47	70,979 31		2,504 71	74,024 49
Building materials	55,757 41	60,457 65			116,215 06
Clothing, hats, boots and shoes	202,007 66	139,143 83	1,805 85		342,957 34
Coal and coke				56,887 50	56,887 50
Crockery, glassware, lamps, etc.	45,769 59		770 82		49,540 41
Diplomats' sundries				21,099 10	21,099 10
Drugs, surgical instruments, etc.	42,408 25		252 80		42,661 05
Dry goods—Cottons	61,437 28	168,075 57	218 14		229,730 99
Linens	23,524 42		295 98		23,820 40
Silks	39,744 23		1,287 00		41,031 23
Woolens	91,610 12	14,608 13	1,380 83		107,599 08
Mixtures	24,163 34	3,897 05			28,060 39
Fancy goods, millinery, etc	108,984 95	10,359 09	1,386 82		120,712 86
Fertilizer and bone meal				41,806 66	41,806 66
Fish	8,424 64	88,335 19			96,759 83
Flour	1,200 82	175,662 44			176,863 26
Fruits	55 24	12,664 46			12,719 70
Furniture	47,496 11	36,424 21	461 85		84,382 17
Grain and feed	1,287 33	287,779 65			289,066 98
Groceries and provisions	110,441 79	358,357 89	701 47		469,501 15
Guns and gun materials	12,050 59	10,668 90			22,719 49
Gunpowder	4,778 31				4,778 31
His Majesty (sundries)				12,218 19	12,218 19
Hawaiian Governm't (sundries)				48,570 60	48,570 60
Hardware, implements, tools	76,911 64	157,920 74	3,110 45		237,942 83
Iron, steel, etc	17,682 15	22,731 00	1,781 37	8,388 90	50,583 42
Jewelry, plate, clocks	54,633 55		2,167 50		56,801 05
Leather	1,301 37	45,574 86	20 94		46,897 17
Lumber	2,926 99	199,442 18			202,369 17
Machinery	65,230 79	132,720 48			197,951 27
Matches	712 18	12,510 31			13,222 49
Musical instruments	8,641 86	4,008 25	778 34		13,428 45
Naval stores	14,952 67	39,921 06	1,275 75		56,149 48
Oils (cocoanut, kerosene, etc.)	7,622 86	76,774 88	1,050 00		85,447 74
Opium	59,331 79		69,801 80		129,133 59
Paints, oils, and turpentine	42,713 47	2,028 55			44,742 02
Perfumery and toilet articles	14,981 90	2,369 79	101 33		17,453 02
Plants and seeds				180 25	180 25
Railroad materials, rails, etc	5,637 86	1,765 40			7,403 26
Returned cargoes				2,655 93	2,655 93
Saddlery, carriages, etc	29,580 37	41,315 57	702 80		71,598 74
Sheathing material (metal)				604 22	604 22
Shooks, bags, and containers	99,971 25	13,203 36	6,263 14	1,704 65	121,142 40
Spirits	4,974 77		89,462 21		94,436 98
Stationery and books	17,383 35	55,930 67	606 90	407 00	74,327 92
Tea	19,508 17				19,508 17
Tin, tinware, and materials	7,543 89				7,543 89
Tobacco, cigars, etc	17,254 22	94,221 19	23,445 27		134,920 68
Wines (light)	57,940 19		20,729 35		78,669 54
Sundries by statute				1,814 66	1,814 66
Sundries by permission				11,513 13	11,513 13
Sundries (personal)				17,682 49	17,682 49
Sundries (merchandise)	62,072 63	46,579 20	1,344 92		109,996 75
Charges on invoices	63,011 54	30,740 50	6,028 29		99,780 33
25 per cent. uncertified invoices	3,922 32				3,922 32
Total	$1,694,077 46	$2,417,171 36	$257,246 87	$228,037 99	$4,596,533 68

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In addition to the domestic exports there were supplies furnished to outward bound merchant vessels to the amount of $75,300, and to national vessels $102,300.

The number of whaling vessels which arrived was: United States, 22; British, 1.

Parties are endeavoring to borrow between $2,000,000 and $3,000,000 in London to build a railroad on the Island of Hawaii, terminating at the port of Hilo. If it succeeds it will very seriously impair the business and prosperity of Honolulu, as sugar will then be shipped direct from its terminus to the coast, which will make Hilo an important business port, and a rival to Honolulu. Another railroad is projected in connection with a land scheme in the vicinity of Pearl River, which has its basis largely on the belief that the United States will eventually improve the harbor the river will afford. There is also a street railroad scheme, which promises speedy fruition. Thus far the loans have not been raised, and it is questionable whether they will be until there is a more settled political condition in the kingdom. —HONOLULU, *March 28, 1888.*

JOHN H. PUTNAM,
Consul General.

The following table shows the domestic exports from the Hawaiian Islands during the first quarter of 1888, as compared with the first quarter of 1887:

Articles.	1888.	1887.	Increase.	Decrease.
Sugar.....pounds...	80,473,063	66,306,845	14,166,218	.....
Rice..... " ...	3,796,900	2,353,200	1,443,700	.....
Wool..... " ...	320,396	.....	320,396	.....
Hides.....pieces.....	5,228	7,572	.....	2,344
Bananas.....bunches..	15,931	12,931	3,000	.....
Tallow.....pounds...	24,968	.....	24,968	.....
Goat skins.....pieces.....	2,392	3,247	.....	855
Betel leaves.....boxes,.....	112	94	18	.....
Molasses .....gallons...	3,500	21,415	.....	17,915
Sheep skins.....pieces.....	1,829	1,800	29	.....
Coffee.....pounds...	200	1,500	.....	1,300
Awa ..... " ...	.....	1,936	.....	1,936

GAS STOVES IN GERMANY.

While the electric light is gradually taking the place of illuminating gas, the latter is evidently going to meet with an extensive use in another direction on account of its considerable evolution of heat. In comparison with the electric light it is this property which is—apart from minor brightness—considered as its principal deficiency. It is stated that the heat of a kilogram of gas amounts to 13,000 calories, while from a kilogram of pit coal on an average only 7,500 calories can be obtained. In other countries this heating power has been applied already for economical as well as industrial purposes. In Germany, however, such an application is to be found only in comparatively few cases, because its practical value, though proved and acknowledged

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by experts, is still doubted by a part of the public, while to another part it is either insufficiently or wholly unknown. Particularly the offensive smell and great expenditure form the principal objections, and they are, considering the quality of most of the gas-stoves hitherto used, not unfounded. Lately some technologists and manufacturers have succeeded in inventing and introducing new systems, and it is attributed to their efforts that the people at large take a greater interest in the subject. The administrations of gas-light companies are also striving to bring to the knowledge of the public the economical value of gas heating, thus complying with the fundamental principles for an extensive introduction. Moreover, in some of the largest cities like Berlin, Leipsic, etc., the price of gas for heating purposes has been reduced, and temporary as well as permanent exhibitions of gas-stoves have been brought about to facilitate a complete knowledge of their uses and advantages. In Leipsic even cooking apparatus are let for a comparatively small compensation, to give also private persons an opportunity to get acquainted with them. Of still greater importance are the efforts apparently accompanied with decided success of the International Association for Culinary Art, having its seat in Leipsic. At a culinary exhibition held by this society during the past year attention was called to a number of gas-stoves of various systems. A public examination on the 25th of October last, in the same city, convincingly proved the practicability of this mode of heating. The trials were made on gas-hearths of different construction by members of the culinary association in presence of visitors and with dishes of the simplest and of the most artful kind. For comparative purposes ordinary hearths were used at the same time. The apparatus applied were of German, Swiss, English, and French origin, and all had been supplied by the Leipsic Gas-Light Company, and provided with a gasometer to state the exact consumption of gas. Neither an offensive smell nor great heat was perceivable on the occasion, while the cleanliness and conveniency were remarkable. The gas cooking proved easy to regulate, and required no further work after the dishes were done. The chambers for wood and coal become superfluous. There are no ashes or soot, and repairs are only necessary in exceptional cases and to a limited extent. The apparatus are easily transported and can be applied in any locality. They are to be preferred, owing to the quickness with which food is prepared, accounting partly for their cheapness. A family meal required only ten minutes time and 15 pfennige (3½ c.) worth of gas; the baking of oysters not quite a minute, consuming 10 liters of gas; four kilograms of roast mutton, ten minutes, with 0.25, and five kilograms of roast beef, ten minutes, with 0.3 cubic meter of gas. Taste and appearance of the food were excellent.

I recommend these facts to the serious consideration of our manufacturers of gas-stoves, as here is doubtless a market giving promise of an extensive business. If proper steps are taken our manufactures will find a ready sale, as I know by experience that they are far superior to any others. —GERA,

April 13, 1888.

CHARLES NEUER.
Consular Agent.

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NATURAL GAS IN CHINA.

The following abstract of an account given by Baron von Richtofen of natural gas wells in China may be interesting. These wells are found in Sz'chwan, near a town called Tsz-lin-tsing. In an area of twenty-seven li (9 miles) diameter salt wells are found. To make a well the Chinese use a long and elastic bamboo pole, supported in the middle by a cross piece, a rope made by coupling the ends of long (not twisted) slices of bamboo, and an iron instrument which weighs 120 catties (catty = 1⅓ pounds). The rope is fastened on the thin end of the pole, and the iron on the end of the rope. A slight up and down motion of the thick end of the pole makes the iron hop and bore a vertical hole with its broad, sharpened edge. The ground to be perforated consists chiefly of sandstone and clay. When a portion of the rock is mashed clear water is poured into the hole, a long bamboo tube with a valve in the bottom is lowered and the turbid water raised to the top. Pipes of cypress wood are rammed in to protect the sides of the bored hole and to prevent the water contained in the surrounding ground from getting access to the well; the pipes are attached to each other at the ends with nails, hemp, and tung oil. The inner width of the pipes is about 5 inches. As the work proceeds the pipes are rammed deeper, and a new one attached on the top; the rope, too, is made longer. At a depth varying from 70 to 100 chang (700 to 1,000 feet) the brine is struck, and the well is fit for use. The brine is raised to the top through long bamboo tubes and bamboo ropes, as described, by means of a horsewhim, and then carried to large pans for evaporation, or led to them through bamboo pipes.

Besides these wells there are others, which are bored to the depth of from 1,800 to 2,000 feet. At that distance below the surface petroleum is struck. Immediately on reaching it an inflammatory gas escapes with great violence. Work is now stopped, and a wooden cap fastened over the mouth of the pit, perforated by several rows of round holes. In each of them a bamboo pipe is inserted, and through these the gas is led under the evaporation pans. The pipes ramify, and on each end a tapering mouthpiece, terminating in a small aperture, is attached. The gas is then used for evaporating the brine.

The enterprising spirit which induced the Chinese to examine the ground at so great a depth is said to have had its origin in the drying up of a brine pit. The proprietor was in hopes of meeting brine at a greater depth, but found instead the gas.

When the country was infested with rebels during the Taiping rebellion they removed the cap from one of the gas pits and set fire to it. Since that time, or at least up to the time that Baron Richtofen wrote, a long column of fire rose from that pit, and it is considered nearly impossible to stop the flame.

The gas pits and brine pits are owned separately by corporations. The owners are subjected to the control of the government. The government monopoly is in the hands of the "Taotai," who resides at the place. The

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salt works of Tsz-lin-tsing yield considerable revenue to the government, and have besides enriched numerous proprietors, and give occupation to a numerous population. The number of "fire pits" is twenty-four, and the salt pits are innumerable. Some of them do not enjoy the advantages of gas. The brine is evaporated with grass and wood.

There are salt pits in neighboring localities on the Min River, but no gas pits. — PEKING, *March 10, 1888.*

CHARLES DENBY.

SLAVERY IN CHINA.

As some discussion has lately taken place in the United States touching slavery in China I submit the following observations thereon:

The origin of slavery in China is given in an ancient writing, the Fong-fou-ting, in substance as follows: In antiquity there were no slaves, neither male nor female. The first slaves were felons who lost their liberty by reason of their crimes. But they were slaves simply in the sense that their labor belonged to the public. Prisoners and captives taken in war introduced a second species of slavery. Finally, in the troubles and misfortunes of the third dynasty, the poor, who were without resources, gave themselves with their families to the great and rich who were willing to support them. These two last forms of slavery caused the condition to be regarded rather as a misfortune than a shame.

In the memoirs prepared by the early Catholic missionaries, and printed in 1777, there are treatises on slavery. Marriage of slaves was encouraged for the sake of the increase.

Slaves were usually treated with kindness, and were supported by their masters in their old age. Manumission was common, and instances are recorded wherein slaves refused the tender of their freedom. The missionaries wax eloquent in defense of slavery, and regard the institution as developing "a mode of thought and sentiment worthy of the authors of Telemachus and of the Friend of Man." The traditional Chinese patriarch's idea of the family, they say, modifies and tempers slavery so that masters and slaves become one great family.

Slaves were never numerous in China, and of late years they have decreased in numbers. All China knows, says one writer, that an edict of the emperor was necessary to oblige his Tartars on duty to have slaves for domestic servants, and that this edict is hardly observed.

All modern writers agree that slavery still exists. Every native may purchase slaves, and the condition is hereditary. Freedom is forfeited by crimes or mortgaged for debt. Slaves are so few that they attract little attention. At Pekin girls bring higher prices than boys, varying according to age up to eighteen years, from 30 to 300 taels. Needy parents sell their children, and orphans are sold in times of famine for a few taels in cash.

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Williams ascribes the paucity of slaves to the existence of the competitive examination system. The widely diffused education, consequent on the preparation for the examinations by 2,000,000 of people every year has saved China, he thinks, from the feudal system, the villainage consequent thereon from the introduction of castes and the considerable extension of slavery. To deny that competitive examinations have had this beneficent tendency would be to contradict the experience of humanity touching the benefactions of education. But the same result in western countries is much more advantageously obtained by the common schools, which more than all else are the distinguishing glory of modern times.

It is probable that the patriarchal form of the Chinese Government, the primitive idea among the Chinese as among the Jews, that all the people constituted a great family, and the doctrine of the worship of ancestors, have more than the competitive examinations restricted the spread of slavery.

That slavery is tolerated by Chinese law will sufficiently appear from the statutes which, although fallen somewhat in disuse still exist. I quote a few of these laws.

By section 115 of the penal code a master soliciting and obtaining in marriage for his slave the daughter of a free man suffers eighty blows. Accessories are punished in like manner. A slave soliciting and obtaining a daughter of a free man in marriage is punished in like manner. If he receives the woman into his family he suffers one hundred blows.

A person representing falsely a slave to be free and thereby procuring such a slave a free husband suffers ninety blows. The marriages are in all such cases null and void.

Under section 313 a slave striking a free man shall be punished one degree more severely than is by law provided in similar cases between equals.

Entire disability so caused is punished by strangulation, and in event of death from the blow, the slave is beheaded. A free man striking a slave is punished one degree less than in ordinary cases, but he is strangled if death follows the blow.

Slaves striking or killing one another are punished as equals are.

Under the head of "slaves striking their masters," section 314, the punishments are very severe. For striking the master the punishment is beheading; for killing him, death by the slow process; for accidental killing, death by strangling; for accidental wounding, one hundred blows and banishment. For similar injuries to their master's relatives the punishments are reduced one degree.

If the master beats the slave to death for having committed a crime he suffers one hundred blows.

A gentleman living here who has devoted his life outside of all missionary societies and alone to charity, Mr. J. Fisher Crossette, gives me some information as to slavery. He says there is a system of servitude carried on in

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the coal mines west of Peking. Men are involved in gambling debts and then taken to a coal mine. Their lives and labor are mortgaged for the existing debt and for others subsequently created, and they remain slaves.

The Chinese have a great horror of this condition, and the law has done much to put a stop to this abuse, and in certain districts has succeeded. Mr. Crossette personally knows that large numbers of girls were carried off and sold into slavery during times of famine in the province of Shantung. A Chinese convert at Tsi-nan-fu sold his little daughter for $16 to serve as a maid of all work in a rich man's family. Boys were not marketable. Another Christian sold his wife for $2.50 to pay a debt of that amount.

Mr. Crossette says that there exists in some parts of China a peasant servitude, such as formerly existed in Russia.

CHARLES DENBY.

DRAWBACKS ON NATIVE CHINESE PRODUCTS.

[The Foreign Office to Mr. Denby.]

Your Excellency: In January last the Prince and ministers had the honor to receive a note from your excellency in the matter of drawbacks on native produce exported from the Yangtze ports, wherein you observed that the rules in force seemed to be detrimental to the interest of foreign merchants, and you therefore requested that they be modified, etc. In regard to this matter the Yamên have repeatedly communicated with the northern and southern ministers-superintendent for foreign trade to instruct the several customs authorities under their respective jurisdictions to take under consideration the question as to whether or not a modification in the present system could be effected, and to present a report embodying the true facts of the case. These officers have now presented a report, as follows:

"When native produce is shipped at a river port the shipper must pay both export and coast-trade duty before he ships it. Drawbacks issued can be tendered in payment of coast-trade duties. This rule was adopted with a view to guard against shippers secretly carrying out schemes and smuggling. It has been in force for a long time. Moreover, when the special rules for tea were framed, some years ago, it was clearly made known that these could not be taken as a precedent governing other articles of native produce, and it was no easy matter to alter the established rules."

The Yamên would observe that in regard to this question, since there are in force fixed rules, it has not been convenient to suddenly make a change in them; but since your excellency has stated that they are working disadvantageously to the interest of merchants, and requested that they may be modified, the Prince and ministers could not but consider how an arrangement could be made, thus manifesting a desire to befriend the foreign merchants.

It is therefore proposed that from the fourteenth year of Kwanghsü, beginning on the 112th customs quarterly period (July 1, 1888), all drawback certificates issued before that date will be received in payment of all kinds of duties at the custom-house where they were issued. Drawbacks that were issued previous to that period will be received in payment of coast-trade duties at the office from whence they emanated. Under this rule on the one hand new drawbacks will not accumulate, and on the other hand old drawbacks can, from time to time, be all redeemed. This system will not prove detrimental to either the customs or the merchants—the modification made is just and equitable, of which the Prince and ministers believe your excellency will approve. — Peking, *March 27, 1888.*

CHARLES DENBY.

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FOREIGN TRADE OF FRANCE.

The following table shows the foreign trade of France for the quarter ended March 31, 1888:

Articles.	Imports.		Exports.	
	1888.	1887.	1888.	1887.
Alimentary produce	$77,412,000	$77,308,000	$28,185,600	$33,196,600
Raw produce	96,961,400	107,135,200	33,948,200	32,358,600
Manufactured goods	26,692,600	27,027,600	82,117,000	78,319,600
Other merchandise	4,350,800	4,642,000	7,988,400	8,326,000
Total	$205,416,800	$216,112,800	$152,239,200	$152,200,800

HAVRE, FRANCE, *April 17, 1888.* F. F. DUFAIS,
Consul.

SCOTTISH CATTLE COMPANIES IN THE UNITED STATES.

[DUNDEE ADVERTISER, FEBRUARY 29, 1888.—TRANSMITTED BY CONSUL WOOD.]

Of the half score or so of cattle companies the shares of which are altogether or largely held in the north and east of Scotland, the reports of all but two or three have now been issued for 1887. No report has yet been issued by the Western Ranches Company; but the company is a small one, and its experience for the year will not much affect the general result. Neither has any report been sent out by the Powder River Cattle Company. None need be expected. The company is in liquidation, with the view of getting itself reconstituted under a new and more attractive name; but unless the belief of its shareholders is much mistaken, its fate will be to wind up with the loss of all but a fraction of its capital. The reports which have been issued reveal quite as strikingly as the reports for 1886 an alarming sacrifice of capital. No year in the disastrous history of these companies has shown poorer results. Prices of cattle were never so low; so at least all the companies tell us, and there is ample evidence that they are telling the truth. Luck has been against the companies since 1883. One or other of the many evils to which, as shareholders know from bitter experience, the ranching business is heir, has duly made its appearance whenever prospects have begun to look fair. When the winter has been good the summer has been bad. When the drought has been on its best behavior the blizzard has been violent all over the plains. One company has been eaten up by wolves and another by squatters, and more than one have been the victims of patriotic litigants and still more patriotic juries. The one thing which has not varied has been the downward run of prices. In 1886 it was thought that prices had reached a phenomenal depth and must begin to rise. Last year they went to a still lower depth, and, though there is in all the reports a melancholy monotony of hopefulness that the turn will surely come this year, the expression of it does not brighten up faces at cattle companies' meetings.

The measure of the fall in 1887 from the average price-level of 1886 is well shown in the cases of the Matador and Prairie companies. The sales of the Matador Company in 1887 were 14,605 cattle, nearly all young cattle or old and barren cows. If even the average price of 1886 had ruled the proceeds of these cattle would have been £45,687, instead of £27,961. The sales of the Prairie Company were 8,863, more than half of which were

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steers of three years and over; £30,325 was realized for them, but if the prices had been as good as in 1886 the sum realized would have been more than £50,000. It is only natural that the cattle companies should hope that in this depth of depressed prices things should begin to mend. With all this difference between prices in 1886 and 1887 the actual losses of the companies on their year's working were light. No company earned a dividend, and, apart from the Pastoral Company, which showed a profit of £15,713 by taking credit for an assumed increase in the value of its cattle, the credit balances carried forward by all the companies in the lists below were £10,059. The debit balances were £25,454, so that the year's working of the eight companies whose reports have been issued resulted in a loss of £15,395. The money which these companies have invested in the cattle business is about three and three-quarter millions. Of this sum more than one million three hundred and thirty thousand pounds are held in debentures, on which interest at 4½ per cent. and upwards is paid. On the year's working, therefore, an exceedingly risky business, employing in round figures £3,750,000, paid a fair percentage on £1,330,000, and earned £15,395 less than nothing for the rest. The only comforting fact in the distressing matter is that apart from extraordinary losses carried on from year to year, and now at last confessed, the companies almost made ends meet. They were £15,395 short, but this insignificant item is hardly worth reckoning in the magnificent "deficiencies" to which the story of cattle ranching has made us accustomed. For example, the extraordinary losses recorded for the year were, as will be seen from the table below, very great. But they should have been acknowledged long ago. The balance-sheet of the Arkansas company contained fantastic assets for several years, and even yet it has not been made what it ought to be. The Swan Company wrote down its herd, and the value of it, as soon as it knew that it had been deceived; but its manager must have known several years ago that the entries were imaginative, and the heavy, extraordinary loss in the table, though it falls on this year, is of old standing.

	Profits.	Ordinary losses.	Extraordinary losses.
Matador Company	£1,763	.....	.....
Texas Company	.....	£936	.....
Hansford Company	23	.....	.....
Prairie Company	.....	4,991	.....
Arkansas Company	.....	4,820	£51,179
Swan Company	.....	.....	*301,000
Cattle Ranch Company	8,273	.....	.....
Pastoral Company	†15,713	.....	.....
Western Company	.....	14,707	.....
Total	£25,772	£25,454	£352,179

The year 1883 was a fairly good year for the cattle companies. There is no eternal reason why they should not get back to the scale of prices which were then in force. In that year the prices per head of the cattle sold were sufficient to pay handsome dividends to the shareholders. We have in the table below compared the returns per head in 1883 with those of last year. The return is for some of the companies a little misleading. The Matador Company, for instance, sold heavy cattle in 1883 and very young cattle and old cows in 1887. The Texas Company sold little but young cattle in 1883. Last year it sold mostly old cows and old horses and mules. But for the companies all over the comparison and contrast of the two years are fair enough. The companies together sold in 1883 46,086 cattle, at an average price per head of £5 12s 8d. They sold last year 55,613 cattle, at an average price head of £2 8s 7d. If the Matador figures be struck off 1887 for the large proportion of old cattle which they include, the average price for 1888 would be £2 12s 4d. If, therefore, 1887 had had been as 1883, the companies would have carried, not a loss on the year of more than

*The figures are taken from the interim report; the ordinary report is not yet issued.
†Obtained from "increased value of herd."

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£15,000, but a gain of more than £160,000. The following are the prices per head obtained by the companies in the two years, in most cases on a smaller capital than now:

	1883			1887		
Matador Company	£6	3	0	£1	18	3
Texas Company	2	15	7	2	2	1
Hansford Company	2	14	10	4	1	1
Prairie Company	5	2	9	3	8	5
Arkansas Company	8	0	7	4	7	8
Cattle Ranch Company	7	8	8	4	3	1
Pastoral Company (1884)	6	16	0	5	2	3
Western Company	5	19	8	3	17	10

The following table shows the profits earned by the companies in 1883:

	Profits.
Matador Company	£15,118
Texas Company	20,664
Hansford Company	13,231
Powder River Company	22,860
Prairie Company	59,013
Arkansas Company	14,134
Swan Company	37,695
Cattle Ranch Company	20,282
Pastoral Company (not formed)	.....
Western Company	31,478
Total	£234,505

Shareholders in cattle companies have become accustomed to disaster. Investors in these concerns and in New Zealand mortgage companies have become so used to the export of British money for the benefit of needy, greedy, and scheming adventurers and distressed bankrupts on cattle and sheep ranches at the ends of the earth that new disasters hardly cause a flutter in the market. The Prairie Company's call of £60,000 has been received with a stoical indifference which is admirable. And truly it needs something of a stoic's indifference to bear well the losses set forth in the following table. They are the total confessed losses of the companies in the table to the end of 1887. The market price of the company's shares makes the total loss very much more than is here shown, but sufficient for the day is the evil thereof.

Matador Company	*nil*
Texas Company	£83,174
Powder River Company (approximate)	250,000
Hansford Company	82,367
Prairie Company	4,491
Arkansas Company	75,664
Swan Company	301,000
Cattle Ranch	114,450
Pastoral Company	13,316
Western Company	14,707
	£939,701

It is generally admitted that the companies which have a chance of recovering themselves are those which hold land either as owners or under leases. Mere range rights for which large sums were in some cases paid are worthless. Squatters are heedless of them, and take possession of the land held under them as if they had no existence. The Arkansas and Cattle Ranch Companies, which kept range rights in their balance-sheets as assets till last year, have at last written them off as of no value. The consequence to the Arkansas Com-

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pany is that it has 16,000 acres of its own, and some land for which it pays a rent of £87, on which it can with any security graze its herd. It is thus at the mercy of any squatter who may come upon it. The Cattle Ranch Company pays £768 for rent, but does not show how much land it holds on lease. The table below shows the position of the companies in this important respect:

LANDS OWNED AND LEASED PER HEAD OF CATTLE.

	Acres.
Matador	7 1-5
Texas	5½
Hansford	9⅔
Prairie	2¾
Arkansas	4-5ths
Swan	10⅝
Pastoral	10½

It will be seen that so far as the possession of land goes the three Dundee companies are in a strong position. The large proportion of land to cattle in the case of the Swan Company is due to the fact that the herd of the company has been written down from 124,000 to 55,000.

TARIFF CHANGES IN SIERRA LEONE. — Consul Lewis reports that an ordinance was passed by the legislative council of Sierra Leone, on the 30th of December last, abolishing all export duties in African provinces, and also tonnage on vessels entering that port. On tobacco, manufactured, the import duty is reduced from 6 pence to 4 pence per pound, while that on claret wine is doubled, viz., from 6 pence to 1 shilling per gallon. On all goods that pay specific duties an ad valorem duty of 5 per cent. is levied.

Additional specific duties are levied on the following imports in the following amounts: Lumber, 8 shillings per 1,000 feet; hardware, 3 shillings per cwt.; salt, 3 shillings per ton; sugar, refined, 10 shillings per cwt.; sugar unrefined, 5 shillings per cwt.

TOBACCO IN CANADA.

For the twelve months ending March 31, 1888, there has been imported into Kingston leaf-tobacco valued at $17,250. During the same period, of the same tobacco, $11,631 in value has been returned to the United States.

I understand that it is foreign tobacco purchased in bond in New York city comes to Kingston, goes into bond, and is then exported to the United States, paying duty at Cape Vincent.

I do not understand why it should be profitable to bring tobacco to Kingston for distribution to the different cities of central New York. — KINGSTON, ONT., *May 2, 1888.*

M. H. TWITCHELL,
Consul.

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EMIGRATION FROM HAMBURG.

The number of emigrants which went through the port of Hamburg was not so great for the year 1887 as for 1886, but exceeded that of 1885. For the past ten years the number of emigrants sailing from Hamburg each year has been as follows:

1878	24,803	1883	89,465
1879	24,864	1884	91,603
1880	68,887	1885	69,403
1881	123,131	1886	88,638
1882	113,221	1887	71,062

The total emigration for the last ten years through the port of Hamburg is 765,172. In the later years the number of business men and pleasure seekers has increased. The years 1881 and 1882 show much the largest emigration, owing to the persecution of the Israelite population of Russia. The emigration by way of Hamburg is by no means confined to the population of the German Empire, but is gathered in from most all the countries of continental Europe.

A peculiarity of the present emigration is the growing increase of indirect transportation by way of England. In the year 1885 the emigration by way of England was 14,365; while for the year 1886 it was 40,330, or nearly one-half of those departing from Hamburg. The cause of this large increase in indirect emigration is attributed to the steady and persistent efforts of the competing English lines of steamers for the transportation of emigration. During almost the entire year of 1886 the English lines fixed their rates from Hamburg to New York at 35 marks ($8.55) per head.

Rigid and accurate statistics of emigration have been kept since the year 1846, and from that time to 1887 there departed from Hamburg 1,701,465 emigrants.

Doubtless local causes can often be assigned as reasons for the movements of these populations, but the prevailing and prominent cause is a desire to improve their condition by finding homes in a country of cheap lands and with greater resources yet to be developed. Political conditions may actuate a few to emigrate, but the overcrowded populations and the thoroughly developed conditions of their native lands influence the vast majority to seek homes in newer countries, abounding in limitless resources and elements of prosperity. — HAMBURG, *January 12, 1888.* WM. W. LANG,

Consul.

THE TELEGRAPH IN FORMOSA.

The line of telegraph in Formosa has been completed from Keelung in the north, to Tai-wan-foo, in the south end of the island. As the cable across the channel is in operation, all the Chinese portions of Formosa are now in close telegraphic communication with the outside world. — AMOY, *March 20, 1888.* W. S. CROWELL,

Consul.

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EPIDEMIC CHOLERA IN CHILI.

The effect of the large loss of labor through cholera has been severely felt. It has been difficult to obtain workmen for harvesting, mining and the railway extensions and improvements. Mere laborers on the railway in the Cordilleras, whose daily wages heretofore ran from 60 to 90 cents (paper) are receiving as much as $1.40 (gold, or its equivalent). At Talcahuana many vessels, mostly English, have been lying long waiting for cargoes of wheat, which are not furnished for want of labor to harvest, transport and lade.—VALPARAISO, CHILI, *March 17, 1888.*

JAMES W. ROMEYN,
Consul.

PROPOSED SOUTH AFRICAN CUSTOMS UNION.

The want of an equitable and uniform system of customs tariff throughout the South African States and colonies has long been seriously felt, and has been the source of much irritating and futile competition. The subject occupied a considerable portion of the deliberations of the Cape of Good Hope Parliament at its session of last year, and culminated in an agreement to invite the Natal, the Orange Free State and the South African Republic to appoint delegates to meet those to be appointed by the Cape Government, with the object of discussing, and, if possible, devising means for the establishment of a South African Customs Union; and also to consider the subject of colonial railway extension to the north.

In accordance with this agreement a conference consisting of delegates from Natal, Cape Colony and the Orange Free State (the South African Republic not being represented,) convened in this city on the 1st February ultimo, and remained in session until the 18th ultimo. The proceedings of the conference were conducted in secret session; but the conclusions arrived at have just been made public through the columns of the Government Gazette. As in all probability the recommendations thus agreed upon will be ratified in due time by the governments represented in the conference, as well as that of the South African Republic, I deem it proper to transmit to the department herewith a full text of the proceedings of the conference.

Although the establishment of a customs union appears to have formed the primary object of the conference, that portion of its labor which relates to the construction of new railways will be viewed as of far greater importance by the outside world. According to the programme as outlined by the conference, the Cape Colony Railway system will be pushed forward from Colesberg, a point near the Orange River, about 550 miles northeast from Cape Town, and 355 miles north from Port Elizabeth to Bloemfontein, the Orange Free State, thence northeast to a point near the northern border of the Free State, where a junction is to be formed with the Natal line to be ex-

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tended from Ladismith its present terminus. To effect this junction of the two colonial branches, as above indicated, will require the construction of about 400 miles of new railway which, for the greater part, will penetrate a country famous for its agricultural capabilities, its prodigious mineral wealth and its mild and salubrious climate. This immense tract of country is now but sparsely settled, and is only to be reached by wretched dirt roads and the slow locomotion of the ox wagon. To anticipate a teeming population to follow the opening up of this country by railroads calls for no stretch of imagination.

Although the government of the South African Republic was not represented in the conference, it is generally conceded that it will coincide with the recommendations made by the conference and co-operate in carrying them into effect by constructing her part of railway from the junction near the border of the Free State north to Pretoria and the principal gold mining centers. Thus a programme is laid out by which the fabulously rich gold districts of the transvaal and the contiguous territories to the north may, it is hoped, in the early future be reached by rail from a half dozen points on the South African seaboard; and it is confidently predicted by persons here whose opinions are considered worth having, that within two years from now this promising outlook will become a part in reality. When this is accomplished South Africa will awaken from her long sleep of lethargy and open her eyes to the light of the new destiny which is in store for her. Immigration will naturally follow the opening up of this country by new lines of railways, and a part of the great stream of Europe's surplus population constantly flowing westward will doubtless be diverted from the old channel and find its way to the new South Africa. — CAPE TOWN, *March 5, 1888.*

JAS. W. SILER,
Consul.

It is proposed that we should enquire into the practicability of a customs union. I assume unanimity of opinion as to the expediency of collecting customs duties for the purpose of raising a revenue, and that by no means can so large a revenue at present be raised. Customs duties are a source of revenue in all the civilized maritime countries of the world, however advanced may be their theoretical ideas regarding direct taxation, and that source is not likely to be abandoned here during the present generation.

The customs tariff of the Cape Colony may be regarded as high; and although it can not be said to be based on protective principles it is in some of its details protective in its operation. One of the questions to be submitted for your consideration involves what may in some respects be regarded as a recognition of the principle of protection. We are not in a position to set trade entirely free, but we may make an advance in that direction if we relieve the products of the countries joining the union from taxation, while at the same time we are obliged for revenue purposes to maintain the customs duties already imposed upon the great bulk of articles imported into the union from outside.

For the purpose of opening discussion, I desire to invite your attention to a few propositions regarding a customs union, assent to which it appears to me is necessary if any substantial advantage under this head is to accrue from the meeting of the conference. To establish a customs union between the maritime colonies of the Cape and Natal and the inland States of the South African Republic and the Orange Free State it will be indispensable first to pro-

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vide that the duties paid by the merchants throughout the union upon articles imported into the union from outside shall be uniform.

The duties so levied by the maritime colonies upon the articles consumed by the inhabitants of the inland states might then be paid over to the governments of those states, less a reasonable deduction towards meeting certain heavy charges incurred by the maritime states in the shape of harbor works, railways, postal and cable subsidies, and also the cost of collection. Such deduction may, for convenience, be called the transit charge. The way would then be open for an endeavor to establish free trade throughout the union in respect of the products of the colonies and states comprising the union. Suppose, for example, the Cape and Natal established a uniform tariff of 12 per cent. against the outside world, and agreed to retain a uniform transit charge of 3 per cent. on imported articles passing through each colony, there would remain 9 per cent. which might be handed over to the governments of the inland states in which the articles were consumed, provided that an equivalent rate were levied by the inland states on articles imported into them by any other route.

This proviso is essential; for, if the Cape and Natal agreed upon a uniform tariff of 12 per cent., and a uniform transit charge of 3 per cent., and were to agree to pay the balance of 9 per cent. to the governments of the Orange Free State or the South African Republic on articles passing into those states by those routes, the merchants in the Orange Free State and the South African Republic importing articles via the Cape and Natal would, like the merchants in the Cape and Natal, be subjected to a duty of 12 per cent. But if the same articles could be imported into the Orange Free State or the South African Republic via Delagoa, subject only to a Portuguese transit charge of 3 per cent., the saying to the merchants would divert the Orange Free State and South African Republic trade from the Cape and Natal ports to Delagoa Bay.

If, therefore, the South African Republic were not to levy 9 per cent. on articles imported from Portuguese territory it would be impossible for the Cape and Natal to enter into a customs union with her. In such case the difference between the tariff and the transit charge of the British colonies would have to be given as a rebate to the merchants in the South African Republic, so as to put imported articles upon the same footing there, whether coming from the Cape, or Natal, or Delagoa Bay. So, in like manner, if articles were imported into the Orange Free State from Delagoa Bay via the South African Republic, subject only to a Portuguese transit charge of 3 per cent., the Orange Free State would have to impose an import duty of 9 per cent. on its vaal border, or a customs union between the Orange Free State and the Cape and Natal would be impossible; for without such duty the 9 per cent. in the hands of the Cape and Natal Governments would have to be given as a rebate to the Orange Free State merchants.

If the South African Republic and the Orange Free State entered into a customs union with the Cape and Natal in the manner proposed, it is obvious that the merchants in all the four colonies and states would then be in the same position, paying 12 per cent. on all seaborne imported articles. Trade would then be free to flow untrammelled through its natural channels, that is, by the shortest and cheapest routes. In such case the South African Republic would, of course, have to surrender to the Orange Free State the 9 per cent. on any imported articles entering the Orange Free State from Delagoa Bay via the South African Republic upon which the Government of the South African Republic had levied the 9 per cent. duty, and in like manner the Orange Free State would have to surrender to the South African Republic the 9 per cent. received from the Cape and Natal upon any articles passing from the Cape or Natal into the South African Republic via the Orange Free State, or the governments of those colonies would pay that amount direct to the Government of the South African Republic.

The first step, therefore, in the discussion will be for the delegates of the Orange Free State to realize that a customs union is not practicable if it is to consist merely in the government of that state receiving a cheque from the maritime states for a proportion of the duties levied at the ports on articles eventually consumed in the inland state. A customs union entails re-

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ciprocal obligations on both sides. It is impossible for the governments of the inland states to be allowed a proportion of the custom duties collected at the colonial ports, unless they impose similar duties on articles imported from other ports. If they are not willing to adopt this course the rebate must be given not to the governments of the inland states, but to the merchants; for otherwise it is obvious the inland trade would be diverted from colonial ports, and any agreement on the part of the colonies to pay the governments of the inland States a share of the import duties would simply remain a dead letter. The maritime states can not surrender what they do not receive. If the trade is diverted no duties will be collected, and consequently none will be handed over to the inland states. The sound policy for the Cape and Natal to pursue appears to be to establish a uniform tariff against the outside world, to retain a uniform transit charge on articles passing through to the interior, and to hand over the difference to either the governments or the merchants of the inland states, according as such governments do or do not enter into a customs union. The question of a free interchange between the Cape and Natal of the products of both countries might then be considered.

If the transit charge fixed upon by the Cape and Natal were the same as that levied by Portugal on articles passing through her territory into the South African Republic, it would follow that the merchants in the South African Republic and the Orange Free State would be subjected to the same duty whether the articles were drawn from the Cape, Natal, or Delagoa Bay, and trade would be free to flow through its natural and most economical channels. It may be doubted whether Delagoa Bay can at present be regarded as a competitor for trade fairly belonging to the Cape or Natal. In the event, however, of the Dalagoa Bay railway being extended to Pretoria, there can be no doubt that it would materially increase the advantage already possessed by the superior geographical position of Delagoa Bay in relation to the inland trade. It is worthy of consideration whether Portugal might not be induced to enter with the Cape and Natal into an arrangement to levy uniform duties and retain a uniform transit charge, handing over the difference to the Government of the South African Republic. This would dispose of the great difficulty in the way of a customs union between the British colonies and the inland Republics. It would, besides, be no disadvantage to Portugal. All that the Cape and Natal desire is that they shall be placed at no greater disadvantage than that of distance which is inseparable from their geographical position. This can, of course, be effected in spite of all opposition, and the question to determine is whether it shall be effected by a rebate to the merchants or by a customs union. The scheme now suggested would meet the cases of British Bechuanaland and Basutoland. As to the former, the Government of that Crown colony would receive from the Cape the difference between the transit charge and the import duty collected at the ports, and would have in return to impose a similar import duty on articles entering British Bechuanaland from the South African Republic, unless the latter entered the customs union, in which case the Government of the South African Republic would pay to the Government of British Bechuanaland the same share of the duties on sea-borne imports entering British Bechuanaland from Delagoa Bay via the South African Republic, as the Cape would pay to it on goods passing into British Bechuanaland through the Cape.

As to Basutoland, the government of that territory has a legal claim upon the Cape Government to the extent of £20,000 a year towards deficiencies in its revenue, and actually receives £18,000 a year in lieu of a share of the customs duties on articles imported at Cape ports and consumed in Basutoland. As, however, Basutoland is largely supplied through the Orange Free State, if the Orange Free State entered into a customs union a deduction should in fairness be made from the payment by the Cape Government to the Government of the Orange Free State, equivalent to the estimated amount of the articles passing into Basutoland via the Orange Free State, otherwise the Cape colony would be paying on the articles consumed in Basutoland twice over.

The key to the position at present is a customs union such as that sketched out between the Cape and Natal. If that can not be effected, the Cape will simply have to retain its present tariff as regards home consumption, and, as regards the interior trade, to place herself upon the same footing as Natal, whatever that may be. Supposing that the Cape *ad valorem*

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tariff remained at 15 per cent., and the Natal tariff at 7 per cent., Natal might, with the view of competing with Delagoa Bay for a share of the trade of the South African Republic and the Orange Free State, retain only a transit charge of 3 per cent., and give a rebate of 4 per cent. to the merchants in the interior. In such case the Cape would simply follow suit, and, retaining a transit charge of 3 per cent., give a rebate of 12 per cent. to the merchants in the extra-colonial territories; in which case the governments of those states would receive nothing. Whatever course is taken by Natal with the object of retaining her trade is equally open to the Cape colony. As, however, not only the maritime colonies, but also the inland states, require additional revenue to enable them to prosecute further necessary public works, a customs union of the character already described, with, as far as possible, a free interchange of local products, would be a far more advantageous arrangement for the inhabitants of South Africa than a "beggar-my-neighbor" policy, which seems to be the other alternative.

By way of illustration, a uniform *ad valorem* duty of 12 per cent. has been named, and 3 per cent. of that as the transit charge, but I do not wish to be understood as pledging the government to those amounts. The actual figures would depend very much upon the conclusion arrived at upon another most important question, which will engage the attention of the conference, viz., Northern Railway extension. The Cape ministry has already given an indication of its earnest desire in this matter, and it is prepared to listen to any proposals that may be made by the representatives of the neighboring countries, and to render every assistance in its power towards an object, the attainment of which will have such a material influence upon the future well-being of South Africa. Mention has been made of free trade in the products of the union. An approach towards that principle is made in the present Cape railway tariff, which places colonial products in a more favorable position than imported goods. In the event of railways being extended into the neighboring states the government would be ready to place the products of the other parties to the union upon the same footing as those of the Cape colony, so as to make the union one for commercial purposes. In the interests of both consumers and producers in the Republican States a main element in railway construction is the consideration of the nearest and cheapest routes to the sea coast.

The result of railway enterprise in the Cape colony would have been more favorable had the guiding rule in the selection of routes been the probable development of traffic; but, notwithstanding mistakes in the past, the considerable experience obtained by the Cape Government in the working of railways justifies the expression of a belief that, although the extension of the existing lines into new countries will not immediately be followed by the acquisition of a revenue sufficient to meet the whole of the charges incurred, yet the receipts on the Free State lines will probably go so far in that direction as to require not more than the amount which may be reasonably expected by the government of that country as it shares of the customs duties to supplement the deficiency.

The expansion of the gold mining industry across the vaal, with the consequent rapidly increasing population, opens a boundless prospect for the profitable investment of capital in the construction of main arteries for the conveyance of the traffic created by large centers of population. The time for action having arrived, we should now close our ranks, and push on with all our energies as one people moving in one way.

The conference is of opinion that the Orange Free State is entitled to a share in the customs duties collected on goods imported through the maritime colonies and consumed in that state. That it is desirable that there should be a customs union among all the colonies and states of South Africa on the basis — subject to certain limitations to be agreed upon — firstly, of an uniform tariff on all imported goods consumed within the union, and of an equitable distribution of the duties collected on such goods amongst the parties to such union; and, secondly, of trade between the colonies and states in respect of all South African products. That, with a view to furthering the ultimate establishment of such an union, it is further desirable that the colonies and states represented at this conference should, if practicable, initiate a customs union as among themselves on the basis therein laid down. That the conference is of opinion that every colony and state joining the customs union should be at liberty to pass

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across its borders or through its seaports goods intended for consumption outside the union, duty free or at such rates as its own interests may demand. That the conference now proceed to the discussion of the uniform customs tariff to be levied, and the equitable distribution of the proceeds to be obtained under such tariff. That the following shall be the duties of customs levied upon goods imported into any part of the customs union:

a. On rated articles, viz:

	£	s.	d.
Ale and beer, per imperial gallon	0	1	0
Butter, per lb	0	0	3
Bacon and Hams, per lb	0	0	2
Beads, per lb	0	0	2
Candles, per lb	0	0	2½
Cement, per 400 lbs	0	2	0
Cheese, per lb	0	0	3
Chicory, per 100 lbs	0	16	8
Cider, per imperial gallon	0	1	0
Coals, coke and patent fuel, per ton	0	2	0
Cocoa and chocolate, per 100 lbs	0	16	8
Coffee, per 100 lbs	0	12	6
Confectionery: Jams, jellies, bottled and tinned fruits, and manufactured sweets not being medicated or properly classed as apothecaryware, but including sweetmeats of all sorts, and other articles with which sugar is largely compounded for preserving purposes, the 100 lbs	0	16	8
Corn and grain of all kinds, per 100 lbs	0	2	0
Dates, per lb	0	0	2
Dynamite, per lb	0	0	3
Fruits, dried, per lb	0	0	2
Flour, wheaten, or wheaten meal, per 100 lbs	0	1	6
Ginger, dry, chow-chow, and other similar preserves, per lb	0	0	3
Gunpowder, per lb	0	0	6
Guns and gun-barrels, per barrel	1	0	0
Lard, per 100 lbs	0	12	6
Matches, wooden, in boxes or other packages containing not more than 100 matches, the gross	0	2	0
In boxes or other packages containing more than 100 and not more than 200 matches, the gross	0	4	0
Wax vestas and fusees, in boxes or other packages containing up to 50 vestas or fusees, the gross	0	2	0
In boxes or other packages containing up to 100 vestas or fusees, the gross	0	4	0
(and at the same rate for every additional 50 vestas or fusees)			
Meats, salt and preserved, in tins, cases, or otherwise, per lb	0	0	2
Mules, each	1	0	0
Oils of all descriptions, other than chemical, essential and perfumed, per imperial gallon	0	1	0
Paddy (known in Natal as coolie rice), per 100 lbs	0	1	6
Pistols or pistol barrels, each	0	5	0
Picks and hoes (Kafir), each	0	0	6
Rice, per 100 lbs	0	3	6
Salt, rock, per ton	0	2	0
Salt, all other descriptions, per ton	0	5	0
Soap, common, brown, blue, yellow or mottled, per 100 lbs	0	4	2
Spirits of all sorts, not exceeding the strength of proof by Sykes' hydrometer, and so in proportion for any greater strength, per imperial gallon	0	10	6

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Spirits of all sorts not exceeding the strength of proof by Sykes hydrometer, and so in proportion for any greater strength per gallon, the produce of any state, colony, or territory within the customs union (subject to exceptions in paragraphs *d* and *e*. per imperial gallon	0	4	6
Spirits (sweetened or perfumed), liquors and cordials, per imperial gallon	0	10	6
Sugar of all sorts (including molasses and concrete) other than the produce of Natal, or other state, colony or territory within the customs union, per 100 lbs.	0	12	6
Sugar, including molasses and concrete, the produce of Natal, or any other state colony or territory within the customs union (subject to the exception provided for in paragraph *e*), per 100 lbs	0	6	3
Tallow, per 100 lbs	0	4	2
Tamarinds, per lb	0	0	2
Tea, per lb	0	0	8
Tobacco, not manufactured, per lb	0	1	0
Manufactured (not cigars or snuff), per lb	0	2	0
Cigars, per lb	0	4	0
And for every £100 value	10	0	0
Cigarettes the lb (gross)	0	2	0
Snuff, the lb	0	4	0
Turmeric, per lb	0	0	3
Turpentine, per gallon	0	1	0
Varnish, per gallon	0	1	0
Vegetables, preserved or pressed, pickles, sauces, and potted and bottled fish, per lb	0	0	2
Vinegar, per gallon	0	0	6
Wine, in bottles, each of not greater content than six to the imperial gallon, per doz. bottles	0	12	0
Wine, in bottles, each of not greater content than twelve to the imperial gallon, per dozen bottles	0	6	0
Wine, in other bottles, or in wood, the imperial gallon	0	6	0
Wine, claret, in bottles or in wood, per imperial gallon	0	3	0
Wood, unmanufactured, other than teak, per cubic foot	0	0	2
Wood, other than teak, planed or grooved, per cubic foot	0	0	3
Teak, per cubic foot	0	0	4

b. On *ad valorem* goods:

Agricultural implements (Kafir hoes and picks excepted), 10 per cent. Axles, bushes, springs and lamps for carts, carriages, and other wheeled vehicles, 10 per cent. Bags for flour, grain, coal, and wool, 7 per cent. Carriages, carts, wagons and other wheeled vehicles, including wheel-barrows, 10 per cent.

Corks and bungs, 10 per cent. Hops, 10 per cent. Iron, bar, bolt and rod, 10 per cent. Marble, 10 per cent. Metal composition and sheathing, 10 per cent. Oils (chemical, essential, and perfumed), 15 per cent. Rosin, 10 per cent. Soda (caustic), 10 per cent. Staves, 10 per cent. Tin, plate or sheet, 5 per cent.

Goods not above enumerated or described, nor otherwise charged with duty, and not prohibited to be imported or used in any state, colony or territory of the customs union, under any law in force on the 16th day of February, 1888, in such state, colony, or territory of the customs union, 12 per cent.

c. Duty free — the following articles, viz:

All raw produce of South Africa. All goods grown, produced, or manufactured within the customs union, excepting sugar, molasses, spirits, and flour manufactured from other than South African wheat. All articles of military, naval or volunteer uniforms or appointments,

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imported for the use of Her Majesty's Imperial or Colonial forces, or forces of the States belonging to the Customs Union.

Animals, living (excepting mules). Anchors and chain cables, for ship's use.

Bones. Bottles of common glass imported full of wine, beer, or other liquid liable to customs duty. Books, printed, not being foreign reprints of British copyright works. Bullion or coin.

Carriages, carts, wagons, and other wheeled vehicles, the manufacture of South Africa. Cotton in its raw state.

Diamonds or other gems in their rough state.

Feathers, ostrich, undressed. Fencing wire, iron standards, and all materials intended to be used solely for the purpose of wire fencing. Fish*. Flowers of sulphur. Fruit, green, including cocoanuts.

Guano and other manures.

Hair*, viz.:—Angora. Hides*, ox and cow. Horns*, ox and cow. Horns*, wild animals.

Ice. Ivory*.

Machinery and the component parts thereof, viz.:—for agricultural, mining, sawing or manufacturing purposes. Maps and charts. Materials for use in construction of railways or tramways within the States, Colonies, or Territories forming the customs union. Materials for use in construction of telegraph lines within the States, Colonies, or Territories forming the customs union.

Paper for newspaper and book printing purposes. Photographs. Pig iron. Printers' and bookbinders' materials. Provisions or other stores for the regular forces in the service of her Britannic Majesty and the States belonging to the customs union.

Seeds, bulbs, or plants (garden). Sheep dip. Skins, viz.:—Goat, seal, sheep, wild animals. Specimens illustrative of natural history.

Tobacco, the produce of South Africa.

Wine, imported or taken out of bond for the use of military officers serving on full pay in the regular land and sea forces of Her Britannic Majesty and the States belonging to the customs union, and also for the use of officers of Her Majesty's navy serving on board any of Her Britannic Majesty's ships; subject, however, to such regulations as may be made; and provided that if any such wines shall be subsequently sold, except for the use or consumption of any such officers serving as aforesaid, the same shall be forfeited and liable to seizure accordingly. Wool*, viz.:—Sheep's.

d. As soon as the Government of the South African Republic shall (in accordance with agreement entered into between the Government of the South African Republic and the Government of the Colony of the Cape of Good Hope) have reduced the duty of customs chargeable on spirits made in any of the States Colonies or Territories of the customs union to the rate of 2s. per gallon, each State, Colony or Territory of the Union shall be at liberty to similarly reduce its duty of customs on spirits the produce of the South African Republic to 2s. per gallon: Provided that any State, Colony, or Territory availing itself of this liberty shall at the same time reduce its duty of customs on spirits made within the customs union to 2s. per gallon.

e. For a period of three years, from and after the establishment of the customs union, no duty of customs shall be charged within any State, Colony, or Territory of the customs union on spirits and sugars of all sorts, including molasses and concrete produced within any State, Colony, or Territory of the customs union, except by the colonies of the Cape of Good Hope and Natal.

f. Any State, Colony, or Territory belonging to the customs union may levy, for its own requirements, on imported ale and beer, claret, flour, and carriages, carts, wagons, or other

*Being the growth and produce of Africa, and not manufactured, but in the raw state.

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wheeled vehicles imported and consumed or used within its own borders, and on no other goods, local duties of customs at higher rates than those imposed by paragraphs *a* and *b*, such additional local rates not to exceed —

On ale and beer, per gallon	£0	0	3
On claret	0	3	0
On flour, per 100 pounds	0	2	6
On carriages, carts, wagons, or other wheeled vehicles, per £100 value	10	0	0

Provided that customs duties have been levied on the said articles by the State, Colony, or Territory in question, prior to the commencement of the present conference; and provided, further, that this last limitation shall not necessarily extend beyond a period of three years from and after the establishment of the customs union.

Every State, Colony, or Territory in the customs union shall be bound to collect the duties of customs payable on all goods imported within its borders from outside the customs union, and to recover for and pay over to the government of any other State, Colony, or Territory belonging to the customs union, three-fourths of the customs union duties collected by it on goods exported to and consumed in such State, Colony, or Territory, and shall refund to the party exporting the said goods any local duties of customs collected on such goods in excess of the customs union tariff.

All goods upon which three-fourths of the customs duties have to be paid over by one State, Colony, or Territory of the customs union to another State, Colony, or Territory of the union shall be subject to such regulations as may be mutually agreed upon by the two States, Colonies, or Territories concerned for the purpose of securing their respective interests.

All goods, the produce of South Africa, passing through a State, Colony, or Territory within the customs union, free of duty, or goods imported by sea and passing through at special rates for consumption in countries outside the customs union, and all goods which are subject to a local duty and on which a rebate can be claimed by the exporting merchant, shall, as far as practicable, be conveyed towards their destination by the railway, and under regulations to be locally framed.

No duty of customs shall be levied by any State, Colony, or Territory of the Union on spirits, or sugars of all sorts, including molasses and concrete, the produce of any State, Colony, or Territory of the customs union, on being passed through any State, Colony, or Territory of the customs union for consumption in any other State, Colony, or Territory of the Union, or beyond the limits of the Union.

Every State, Colony, or Territory of the customs union charging local duties of customs in excess of the Union tariff shall invest every other State, Colony, or Territory of the customs union with all the authority which may be necessary for the collection of such local duties on goods being forwarded across its borders on to the State, Colony, or Territory charging such local duties, and the forwarding State shall thereupon be bound to collect such local duties and refund them, together with three-fourths of the duties collected on such goods under the union customs tariff to the State, Colony, or Territory receiving such goods.

All accounts as between the States, Colonies, and Territories of the customs union shall be made up to the last day of each quarter of the calendar year, and all such accounts shall be adjusted within two months from that date.

Under such local regulation as may be prescribed in that behalf, a rebate of customs duty may be allowed to the wholesale consumers of sugars for the manufacture of jams, preserves, and confectionery; Provided that no premises on which the brewing of beer or distillation of spirits is carried on shall be licensed for the manufacturing of jams, preserves, and confectionery; and provided, further, that any such rebate shall not exceed 5s. 3d. per 100 lbs.

Except in cases of duty paid in excess or error, no rebate or refund of any sum in respect of duty paid, or bounty or gratuity in respect of any dutiable article, will be made or allowed by any State, Colony, or Territory within the customs union, on grounds other than those enumerated in the resolutions arrived at in the present conference.

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Upon mutual agreement between the Governments of all the States, Colonies, and Territories of the customs union, it shall be open to the customs union to prohibit the importation into the customs union or into any State, Colony, or Territory within the customs union of articles other than those the importation of which is already prohibited by existing local acts.

In cases where tolls are collected in any State, Colony, or Territory within the customs union, on roads, pontoons, bridges, or borders, such tolls shall be the same in all cases in respect of the inhabitants of any other State, Colony, or Territory within the customs union as are charged by the State, Colony, and Territory imposing these tolls on its own inhabitants.

Notwithstanding anything contained in the resolutions agreed to by the conference it shall be competent for the Governments of the Cape Colony and Natal to enter into any arrangement they may deem expedient with respect to the ultimate appropriation of the customs duties collected upon goods imported into the customs union at the port of St. John's into Pondoland, for consumption in that Territory.

That the customs union proposed shall be called "the South African Customs Union," and and its terms shall, if agreed to by the Governments and Legislatures of the countries belonging to it, be embodied in a convention to be signed by the chief governing officers of such countries, and come into operation on the 1st of January, 1889, and continue until the 31st of December, 1891; after which the customs union shall be continued for a further period of three years, unless six months prior to the 31st of December, 1891, notice shall have been given by any party to the customs union its wish to terminate its connection with the union; but in such case it shall be open to the customs union to continue, as regards the parties who do not so give notice, and it shall be at the option of any party not having given such notice to convene a conference for the purpose of considering the terms upon which the customs union shall be so continued.

The delegates of the State and Colonies represented at the conference agree to submit the resolution arrived at by this conference to their respective governments, as embodying the basis upon which under existing circumstances a customs union is considered practicable.

When the customs union shall have been established by legislation and convention, it shall be competent at any time during the existence of the union for any South African State, Colony, or Territory not belonging to the union, and having a civilized government to apply for admission; and upon such government signifying its acceptance of the conditions of the customs union, and its passing the requisite legislation to give effect to such conditions, it shall be admitted, provided the parties to the customs union are by a majority of at least two-thirds in favor of such admission: Provided, further, that such application for admission shall be made six clear months before the accession to the customs union of any such State, Colony, or Territory can take effect, and that no such accession can operate prior to the 1st day of January or July in any year, as the case may be.

Should the conditions of the customs union be found in practice to require amendment, it may be affected with the unanimous consent of the governments of the countries comprised within the customs union; and in the event of such consent not being unanimous, it shall be open to any government comprised within the customs union, on giving six months' notice to convene a conference for the purpose of discussion, with a view to the amendment of such conditions.

That the conference having learned the points of junction and the scheme of railway extension favored by the Orange Free State delegates, and that the execution of any scheme is dependent on the receipt of their share of customs, is of opinion that as as soon as the Government and Legislature of the Orange Free State shall declare its readiness forthwith to construct the Orange Free State lines as intimated, the lines of the Colony of the Cape of Good Hope and of the Colony of Natal should be so extended as to enable the proposals of the Orange Free State for railway extension to be carried out; and so soon as the Colonies of the Cape and Natal or either of them have or has brought their lines or its line to the border of the Free State, the extension of such lines or line through the said State should at once be commenced, and should proceed, engineering considerations permitting, without interruption.

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The conference recommends that the junction of the extension of the Natal system with the proposed central line through the Orange Free State shall be effected at the point of the central line nearest to Bethlehem and Ventersburg.

The conference recommends that all materials for railway construction in the Orange Free State shall be carried over Cape and Natal lines at rates not to exceed the estimated cost of transport.

The conference deems it necessary that the same gauge be preserved in the railway construction of the Orange Free State as is at present in use in the Colonies, viz., 3 feet 6 inches.

The conference recommends that prior to the construction of any section of the proposed Orange Free State railways, the different governments interested in their working shall appoint a joint commission, including experts in railway management, to draft the terms and conditions of a convention under which such railways shall be worked, in which convention the following subjects amongst others should be dealt with:

a. The mutual use and reciprocal rights of and to railway bridges on the Orange River, and the cost of maintenance thereof.

b. The regulation of the railway service where the special interests of both parties may at any time differ from each other.

c. The regulation of tariffs on through traffic, and the modification thereof where special rates may become desirable, and providing for equal rights and privileges for all parties to the convention.

d. Postal service.

e. The mutual duties, rights, and powers of the respective governments regarding railways.

That as between the Orange Free State, Cape Colony, and Natal, no higher railway rates shall be charged upon goods or produce coming from either State or Colony than are charged upon the same class of goods or produce within either of such Colonies or State into which or through which such goods or produce may pass.

MANUFACTURE OF STRAW-BRAID IN CHINA. — Consul Smithers, of Tientsin, transmits the following details concerning the manufacture of straw-braid in his district:

The cultivation of wheat-straw, from which the braid is worked, and the manufacture of straw hats for water use, has been a special industry in the northern provinces of China for more than a century. It was not, however, until after Tientsin was opened to foreign trade that the farmer began to pay much attention to the cultivation and curing of the straw, so as to secure greater uniformity of color, as well as fineness of quality. The great desideratum is to obtain as perfect a white straw as possible by means of bleaching in the sun. The process is to pull up the plants by hand when the grain is in the milk and only about half developed. Great care must be taken to prevent exposure to rain. After bleaching the straw is cut at the first joint from the top, all below that joint being useless for making braid.

The industry extends through the great provinces of Chihli, Shansi, Honan, and Shantung, and gives renumerative employment to great numbers of the poorer classes, principally to women and children. It is said that a dexterous woman can make from 35 to 40 yards of braid per day, earning from 14 to 20 cents.

The first shipment of braid to the United States was made about the year 1873, when 35 bales were shipped. In 1886 the shipments amounted to 6,766 bales, and will reach, it is thought, 12,000 bales in 1887, 6,000 baving been shipped during the second quarter of that year. There are 240 bundles in a bale, each bundle containing 165 feet.

The principal varieties are known as white and black Shingkee, Shansi, Shantung mottled, and Honan mottled. There are many qualities of these passing under different names.

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TARIFF CHANGES IN ITALY.

By a royal decree just issued the duties in Italy on preserved and pickled fish will be raised from May 1, 1888, as follows:

On fish pickled in brine or oil, including, tunny in boxes, the duty is raised from 25 lire ($4.82) to 30 lire ($5.79) per quintal. (1 quintal = 220⅓ pounds.)

On fish pickled in brine or oil, including tunny, preserved in any other manner, the duty is raised from 10 lire ($1.93) to 30 lire ($5.79) per quintal.

This may affect to some extent the American fishing industry. —ROME, *April 17, 1888.*

CHARLES M. WOOD,
Vice Consul-General.

KEROSENE IN CEYLON.

The steamship *Glendower* brings the first consignment of Russian kerosene oil that has reached this port, and further regular shipments are expected by Messrs. Freudenberg & Co. If this oil can be landed here in quantities to suit the trade, it may in time supersede the American article, which can only be brought here in full sailing-vessel cargoes. We should, however, prefer to see India and Ceylon obtaining their oil from Burmah rather than from Russia. — *Times of Ceylon, January 11, 1888.*

The first shipment of this oil, about 30,000 cases, expected per steamship *Glendower*, has been sold, and we hear that a further lot of 20,000 to 30,000 cases to be shipped per steamship *Glengoil*, due here from Batoum about the middle or end of April, is now offered for sale by the same importers. — *Times of Ceylon, February 11, 1888.*

The *Straits Times* has the following:

There are said to be nineteen shipments of Russian kerosene oil from Batoum now on their way to India. According to a Bombay paper this sudden development of a new trade is due to the Muscovite having profited to an unexpected extent by the mistake committed by American shippers, who mixed an unconscionable quantity of water with some recent shipments of oil for the Indian market. Batoum oil is more crude than the product of the Pennsylvania wells, but for burning in lamps it is practically quite as good as, and is at all events better than, water. At first the native dealers, conservative in all his instincts, hesitated to take the Russian oil instead of the American, to which he had become accustomed. But the greater cheapness of the cruder oil has resulted in its wide use, and the doubt thrown on American oil by the unfortunate shipments of an adulterated article to Calcutta seems to have given the advantage to the Russian oil.

Whether our "wooden nutmeg" friends have been trying the same little game on with the oil imported into Ceylon we do not know, but the first consignment of Russian oil has already reached Colombo and been sold. When is Burmah going to supply the Indian market with oil? — *Times of Ceylon, March 19, 1888.*

The above paragraphs are not strictly true, nevertheless they allude to a subject of great interest to American exporters, inasmuch as kerosene oil being the principal commodity sent from the United States to the east, anything affecting its status here has an important bearing on the industry.

It is true that about 13,000 gallons of Russian kerosene, packed in cases containing each two four imperial (nominally five gallon) cans, closely imitating American packages, were imported here from Batoum, via Bombay, last year, and sold at about the same price as American oil.

Thirty thousand cases direct from Batoum have also been sold to arrive, at 3.95 rupees ($1.34, gold) per case; but as a matter of fact, excepting the small

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consignment above stated, no Russian kerosene has been seen here, and there is none in the place now.

The last cargo of American oil (60,000 cases) sold at an average price of 3.75 rupees per case, and was delivered here in August, 1887. Since then the importations have been inconsiderable, owing to a desire among the importers to avail themselves of the Russian oil, which it appeared could be delivered here at a price better than 6 per cent. below that of American oil.

This suspension of imports led to a scarcity of oil, causing an enhancement in price, thus facilitating the introduction of the Russian product to this market.

The "Daylight" brand of American oil is now retailing at 7.50 rupees per case, and "Regent" at 5 rupees per case, say $2.55 and $1,70, respectively. This great difference in price, however, is abnormal, as hitherto it has usually been about $0.35 per case in favor of "Daylight" oil.

In my Report No. 130, May 11, 1881, I pointed out how this (then new) market for kerosene might be stimulated and held by American dealers. The import then was only 7,000 cases or 56,000 gallons per annum, whereas last year 54,000 cases or 432,000 gallons were imported, a result, by the way, far surpassing my own prediction, and accomplished spontaneously without any special effort on the part of American shippers or manufacturers. — COLOMBO, *March 20, 1888.*

W. MOREY,
Consul.

RUSSIAN KEROSENE IN CHINA.*

During the month of January, 1888, a cargo of about 50,000 cases of Russian kerosene or refined petroleum arrived at and was sold in the port of Hong-Kong, and the greater portion of it has found its way into the Province of Kwang-tung, and much of it has been sold to Chinese shop-keepers and native consumers at a price about equal to that of American kerosene.

Some of it has been bought and is being consumed by foreign residents, as it is sold for a superior high test and safe oil.

The cans are stamped thus: "The Batoum, Naptha and Trading Company," with the red anchor and ctescent marks.

It is sold by reputable Hong-Kong foreign merchants to Canton buyers at $2.25 per case, containing 2 cans, each of which is the size of the American cans, holding about 4 imperial gallons, or 5 trade gallons, and as having a test of 130°, while ordinary American kerosene is sold as being safe at only 110°. Probably neither of the two oils (American or Russian) have been tested in China.—CANTON, CHINA, *March 23, 1888.*

CHARLES SEYMOUR,
Consul.

*See Consular Reports No. 92, April, 1888, p. 13.

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TRADE AT NEWCHWANG.

There is a decrease in the imports of American drills which is attributed partly to over-importation in 1886, partly to the dissatisfaction of dealers with recently imported goods, many of which bear new trade-marks and are said to be inferior to the standard of former years.

It behooves American manufacturers and exporters to look to this, especially in view of the increased import of English drills and sheetings.

Woolen goods, crape lastings, and lustres are gradually going out of consumption, being too flimsy for the market. Other items are steadily increasing. This is especially noticeable in the case of long ells, used for making bed coverlets and for covering cushions in reception rooms; and of camlets and cloth used in making coats and jackets. It appears that the development of these provinces by immigrants from the south is giving rise to a class who prefer wearing cloth jackets to those made of the commoner sorts of furs, and it is probable that in the near future the import of woolen goods, especially cloth, will be one of the principal items in the trade of this port.

There is a falling off in the export of hides, due to a decline in the home markets. In skins, especially dressed dog and goat, business has been unprofitable, and the dealers have in many instances endeavored to recoup themselves by false packing for the difference between actual cost of the goods and prices paid by exporters. A large number of these dealers have failed and involved many dealers in raw skins and some of the local banks.

In wild silk (raw refuse and cocoons) there is a great increase, but this is due to the determination of the usual buyers to maintain the control of this article, even if they pay more than the equivalent of Shanghai prices.

The increase in beans is due to large crops and low prices in this district coinciding with a partial failure of crops in the south; in bean oil, partly to the above causes, partly to the likin on kerosene oil in Kwang-tung; in wool, licorice, and tobacco, to low cost here and good demand in the south. —NEWCHWANG, *March 16, 1888.*

J. J. FREDK. BANDINEL,
Vice-Consul.

VANCOUVER, B. C.

As some months have elapsed since I have reported upon the new town of Vancouver, and that town is increasing in importance so rapidly, I give here a few lines descriptive of its commerce and progress.

Those especially interested in this flourishing town claim that it has now a population of 8,000 souls. In my judgment 6,000 would be nearer the mark. The official assessed valuation of real and personal estate on the 1st instant is, for real estate, $3,471,245, personal, $204,660, an increase of $1,000,000 in six months. The same authority gives population at 6,085.

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There are three steamers, one of over 1,000 tons register, plying between Vancouver and Seattle, the principal port on Puget Sound. These continually carry full freight to and fro, semi-weekly trips.

The regular steam-packets between San Francisco and Puget Sound ports (weekly trips), touching here inward and outward, proceed to Vancouver from Seattle, delivering and receiving much cargo from and for San Francisco.

The steamers from Orient to Vancouver, now arriving about every twenty days, will, it is said, soon make schedule semi-weekly trips, calling at San Francisco on the return trip.

These vessels are of large size. They are the *Batavia*, *Port Victor*, *Abyssinia*, *Port Augusta*, and *Parthia*. The last arrived at Vancouver on the 9th instant, thirteen days and six hours from Yokohama, with 2,000 tons freight, mostly for United States ports, San Francisco, Seattle, Portland, Oreg., New York, Baltimore, and other ports, designing to proceed to San Francisco to land her freight and passengers destined for that port. But I have just received a telegram from the health officer of San Francisco which leads me to believe that she will have to submit to quarantine at that port the same as if she had just arrived direct from China, which may detain her.

I would state as noteworthy that she brought 221 Chinese, of whom 113 are for San Francisco, 56 for Portland, Oreg., and 18 for Seattle. I presume they all have custom-house return certificates.

During the period from June 15, 1887, to March 29, 1888, the Orient steamships have brought in all 183 Chinese to Vancouver, as per report of consular agent there.

During December quarter, 1887, merchandise from United States ports to United States ports in bond, eastbound, passed through Canada, via Vancouver*, as follows, giving values only:

Beans	$81,085	Horns	1,200
Fish	9,781	Electric machinery	3,310
Fruit	56,031	Barks	1,200
Coffee	43,921	Rattan	1,100
Hops	12,775	Oil-clothing	2,629
Wool	407,392	Total	620,426

During January and February, 1888, 7,409,490 pounds of flour from California and Oregon† left Vancouver for China and Japan by the Orient steamers.

The *Batavia*, which sailed on the 4th instant for the Orient, took 1,369 tons American merchandise, as follows: Flour, 1,276,568 pounds; domestics (5,850 bales), 1,417,670 pounds; 20 boxes organs; 5 street cars; 41 cases machinery; 10 cases electric fixtures; 11 cases school text-books; 13 cases lamps; 1 case watches; 8 cases household goods; 2 hogsheads crockery, and 3 bales rattan core.

The yield of ore from the mines of the province is now considerable. Some 15 invoices were declared at Vancouver during the last two

* Exclusive of Orient cargoes. † Five-sixths from Oregon.

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quarters, 10 of silver, 5 of platinum. This principally from near Illicilaewait. The output from the mines of anthracite coal at Bauff is also increasing. I some time since in reporting upon this coal (in my despatch No. 278, of date August 12, 1887), upon representation by others, intimated that it nearly approached in quality the Lehigh of Pennsylvania. Personal inspection causes me to modify that statement. It is, however, fairly good anthracite, and authority for saying that its quality will improve as the quantity increases in output, and the present scarcity of all coal enhances its reputation. I am indebted for the foregoing statistics to the consular agent at Vancouver. — VICTORIA, *April 12, 1888.* ROBT. J. STEVENS,
Consul.

PROPOSED RAILROAD IN CHEKIANG.

There is no railroad in this (Chekiang) province, nor is there any prospect of any in the near future. Last May a proclamation was issued by H. E. Li Hungch'ang, viceroy of the province of Pechihli, asking subscriptions for the completion of the railroad from K'aiping to Tientsin. This proclamation caused a good deal of discussion among the Chinese here as to the building of railroads and investing money in them. So far as I could find out there was no one here who took stock. Their opinion seemed adverse to building railroads. They argue that the building of railroads would throw many laborers out of employment, also interfere with their shipping, and perhaps one of the greatest obstacles in the way of railroad building here would be the removal of the dead from the graves that would be in the way of the survey for a road. — NINGPO, *March 30, 1888.* THOS. F. PETTUS,
Consul.

PROCLAMATION ISSUED BY LI-HUNG-CHANG, VICEROY OF PECHIHLI, CALLING UPON THE PEOPLE OF THE CHEKIANG PROVINCE TO BUY SHARES IN THE RAILROAD TO BE CONSTRUCTED BETWEEN TIENTSIN AND K'AIPING.

The extension of the existing railroad at K'aiping to Tientsin will be of advantage to the Government and convenient to the people. The railroad company will not be connected with mining company at K'aiping. The rules compiled by the managers and shareholders have been sent me by the directors, Wu Va'otai and others. The company will be carried on in a strictly commercial manner, and the officials connected with it will only protect its rights and see the concern directed honestly.

A capital of 1,000,000 taels is to be raised; printed prospectus for shareholders have been distributed, and in case they do not meet with faith in distant places I have issued this proclamation. It must be understood that railroads are in use in all foreign countries. Our people who have travelled have seen with their own eyes the advantages, and wherever are railways the trade will flourish. All rich people in foreign countries invest their money in railroad stock as an inheritance for their children. China, in following the example of foreign countries in all her matters, should be saving and deal honestly with the shareholders. When a profit is realized by the railroad company it will be divided justly among the stockholders and the managers are not to profit thereby. This is important to the Government, and the officials must see that it will be lasting and worked honestly. All the work must be carried on as in a foreign country, and the business sealed by the shareholders and managers; although officials are connected with it, they have no power to transact business, and are only to see that it is carried on honestly. Anyone in the Chekiang Province desiring shares will apply early. Do not lose this opportunity. Dated the 13th year of Kuang Hsü, 4th moon, 24th day, May 16, 1887.

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FOREIGN CORPORATIONS IN VENEZUELA.

[TRANSMITTED BY CONSUL BIRD.]

Resolution.—Various formalities being followed in foreign countries for the formation of anonymous stock companies, the President of the Republic, with the vote of the Federal Council, has deemed proper to order, that when such companies pretend to domicile themselves and acquire legal status in Venezuela, in the act of registry of the document attesting their organization according to the formalities of their respective country, thus complying with the prescriptions of the code of commerce, they shall pay the sum of 2,000 bolivars (384.62 in United States currency), once only, without reference to the amount of their capital stock.—LAGUAYRA, *April 24, 1888.*

Communicate and publish it.

By the Federal Executive.

PEDRO ARNAL.

ALCOHOL IN FRANCE.

PRODUCTION.

The quantity of alcoholic spirits extracted by distillation from wine—for a long time the only distillation consumed in France—has been gradually diminishing, in consequence of the ravages caused by phylloxera and mildew in the vineyards of France, falling from 18,148,000 gallons in 1871 to 515,000 gallons in 1886; and to meet the ever growing demand for spirits this distillation has been replaced by alcohol distilled from molasses, beet root juice, grape skins, and from miscellaneous farinaceous substances, especially maize and potatoes.

The spirits produced in France are now for the greater part distilled from molasses. From 1840 to 1850 the average yearly production amounted to 1,057,000 gallons. It now reaches 18,492,000 gallons, or nearly two-fifths of the total production.

The distillation of beet root juice is also very important, producing alcohol of a good quality. The annual production in the period between 1840 and 1850 did not exceed 13,209 gallons. It now reaches 13,000,000 gallons; but nevertheless it now seems to be decreasing slightly, and it is replaced by the distillation of grain.

The production of alcohol extracted from grain, which, before the year 1845, did not amount to a great deal throughout France, began to increase about that year, after a severe disease had greatly reduced the yield of the potato crop. It was stationary till the year 1876, but it is now five times greater than then, maize especially being used for distillation. In 1873 the quantity produced was 2,298,000 gallons; in 1884, 12,812,000 gallons, and in 1885 reaching 14,899,000 gallons.

The distillation of potatoes, introduced into France some sixty years ago, has never gained a great importance. In 1873 the production of said spirits reached 246,000 gallons; in 1885 it was reduced to 103,000 gallons.

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The following comparative statement shows the production of alcohol distilled from wine and other substances from 1876 to 1886:

Years.	Alcohol extracted by distillation from—					Total.
	Wines.	Molasses.	Beet roots.	Farinaceous substances.	Other substances.	
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
1876	14,424,000	18,756,000	6,446,000	2,668,000	2,853,000	45,147,000
1877	4,174,000	16,986,000	7,212,000	4,306,000	1,902,000	34,580,000
1878	5,098,000	17,092,000	8,744,000	4,755,000	1,744,000	37,433,000
1879	2,721,000	19,126,000	9,616,000	6,551,000	1,294,000	39,308,000
1880	713,000	18,122,000	11,333,000	10,910,000	687,000	41,765,000
1881	898,000	18,122,000	14,873,000	13,367,000	872,000	47,132,000
1882	581,000	18,598,000	14,688,000	11,808,000	1,004,000	46,679,000
1883	608,000	19,866,000	16,616,000	14,846,000	1,189,000	53,125,000
1884	925,000	20,579,000	15,031,000	12,812,000	1,770,000	51,117,000
1885	608,000	19,258,000	12,284,000	15,005,000	2,087,000	49,241,000
1886	528,000	12,409,000	18,069,000	20,869,000	2,271,000	54,146,000

The following table indicates the quantities of alcohol produced by licensed distillers and by landowners engaged in distillation from 1875 to 1885 inclusive:

Years.	Quantities produced by—		Total.
	Licensed distillers.	Land owners and farmers.	
	Gallons.	*Gallons.*	*Gallons.*
1875	38,887,000	9,958,000	48,845,000
1876	37,195,000	7,952,000	47,147,000
1877	30,960,000	3,620,000	34,580,000
1878	33,285,000	4,148,000	37,433,000
1879	37,089,000	2,219,000	39,308,000
1880	41,105,000	660,000	41,765,000
1881	47,312,000	819,000	47,131,000
1882	45,780,000	899,000	46,679,000
1883	52,068,000	1,057,000	53,125,000
1884	49,479,000	1,638,000	51,117,000
1885	47,419,000	1,823,000	49,242,000

The continuous decrease in the production of wines has been generally counterbalanced by an increase in the production of alcoholic spirits, as is shown in the following exhibit:

Years.	Wines.	Alcohols.	Years.	Wines.	Alcohols.
	Gallons.	*Gallons.*		*Gallons.*	*Gallons.*
1869	1,849,190,000	37,274,000	1878	1,287,274,000	37,433,000
1870	1,440,651,000	32,678,000	1879	680,766,060	39,308,000
1871	1,503,154,000	42,294,000	1880	783,713,000	41,765,000
1872	1,324,994,000	49,955,000	1881	901,850,000	47,132,000
1873	943,510,000	37,618,000	1882	815,916,000	46,679,000
1874	1,668,128,000	40,671,000	1883	951,778,000	53,125,000
1875	2,214,696,000	48,845,000	1884	918,309,000	51,117,000
1876	1,105,473,000	45,147,000	1885	753,836,000	49,241,000
1877	1,490,051,000	34,580,000	1886	663,067,000	54,146,000

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The quantities of alcohol produced undoubtedly exceed the figures set forth in the above statement, as, since the law passed in 1875, which released landowners and farmers from the obligation of making the declaration required from licensed distillers and exempted them from the frequent inspection of revenue officers, there has been a greater facility to defraud the government by making false declarations as to the quantities actually produced.

IMPORTS AND EXPORTS.

In the same time that the production of spirits in France gradually augmented, imports of alcohol, especially from Germany, also greatly increased.

The following table shows the imports and exports of spirits from 1872 to 1886 inclusive:

Years.	Imports.	Exports.
	Gallons.	*Gallons.*
1872	1,268,000	11,889,000
1873	1,270,000	10,789,000
1874	1,624,000	7,971,000
1875	1,622,000	9,187,000
1876	1,730,000	10,171,000
1877	2,557,000	5,796,000
1878	3,566,000	6,300,000
1879	5,283,000	7,054,000
1880	6,921,000	5,925,000
1881	6,314,000	6,079,000
1882	7,568,000	5,180,000
1883	4,425,000	5,732,000
1884	5,072,000	5,680,000
1885	5,178,000	5,664,000
1886	6,023,000	5,558,000

The above figures of imports do not exactly represent the quantities of spirits annually imported into France.

German alcohol of bad quality is to a very great extent mixed with Spanish wines entering France, but which only pays the duty imposed upon wines. This alcohol is afterwards extracted from them, and sold at cheaper prices than French and other foreign alcohols.

IMPORT DUTY.

The import duty levied upon alcohol entering France has been raised, by a law passed on the 5th of July, 1887, from 30 francs to 70 francs per hectoliter of pure alcohol (22 to 51 cents per gallon). This increase of the duty was considered as a kind of retaliatory and protectionist measure against Germany, where a premium of 44 cents per gallon was allowed by the Government to exporters of domestic alcohols as a reimbursement of the internal tax, while this tax was only 15 cents per gallon.

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INTERNAL TAXES.

The following exhibit shows the rate of the internal taxes per gallon of pure alcohol in France and other European countries:

Denmark	$ 20	Belgium	$ 54
Austria	20	Sweden	79
Italy	22	France	1 14
Germany	24	Russia	1 77
Roumania	31	England	3 61

CONSUMPTION.

The following comparative statement will show for different periods of time the correlation between the rate of the internal tax on alcoholic spirits, the taxed quantities of pure alcohol, the products of the tax, and the price and consumption of alcohol from 1830 to 1885 inclusive:

Years.	Quantities of pure alcohol on which the tax has been paid.	Amount of taxes collected.	Rate of the tax per gallon.	Average price of spirits per gallon.	Consumption per inhabitant.
	Gallons.				*Quarts.*
1830	9,642,080	$3,899,000	$ 40	.....	1.19
1831 to 1854	13,670,000	4,149,000	27	.....	1.53
1855 to 1859	21,001,000	9,650,000	44	$ 70	2.38
1860 to 1870	24,013,000	16,308,000	66	51	2.54
1871 and 1872	23,353,000	22,137,000	10	48	2.59
1873	24,673,000	28,566,000		42	2.74
1874	25,624,000	31,092,000		55	2.84
1875	26,918,000	32,964,000		39	2.97
1876	26,417,000	32,482,000		40	2.86
1877	27,183,000	33,428,000		50	2.95
1878	29,058,000	35,821,000		46	3.15
1879	30,670,000	37,828,000	1 14	46	3.33
1880	34,711,000	42,653,000		50	3.85
1881	38,146,000	45,857,000		46	4.13
1882	37,512,000	45,143,000		41	4.10
1883	38,203,000	47,150,000		37	4.19
1884	39,334,000	47,380,000		32	4.23
1885	38,146,000	45,992,000		34	4.07

The preceding statement was prepared by the Ministry of Finances, and represents but imperfectly the real average of alcohol consumers. It does not embrace the quantities of alcohol produced by land owners and farmers, nor alcohol fraudulently distilled or introduced into France; and besides, a large part of the population, especially women and children, consume but a small quantity of spirits. Consequently it is to be inferred that only one-eighth of the total population of France drink spirits, and therefore their consumption of alcohol per capita must be eight times greater than that shown in the statement.

DRUNKENNESS.

The continuous increase in the number of public drinking houses in France is becoming a source of great uneasiness. Their number, which in

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1829 was 297,812, reached 399,145 in 1885. The following statement shows for the last ten years the number of public drinking houses and the proportion of inhabitants for one public drinking house:

Years.	Total number of public drinking houses.*	Proportion of inhabitants for one public drinking house.	Years.	Total number of public drinking houses. *	Proportion of inhabitants for one public drinking house.
1875	342,622	109	1881	367,875	103
1876	343,139	108	1882	372,537	101
1877	349,598	107	1883	377,514	100
1878	350,697	106	1884	386,835	96
1879	354,852	105	1885	399,145	94
1880	356,863	104			

*Statistics do not give the number of public drinking houses in Paris. That number may be estimated at about 30,000, or one public drinking house for 75 inhabitants.

In 1873 a law was passed enacting penalties against intoxicated persons found in the streets, in public drinking houses, or in any other public place, and against those selling liquors to them. The number of convictions under that head for the past twelve years has been as follows:

1873	59,347	1879	65,989
1874	86,418	1880	60,714
1875	98,482	1881	67,379
1876	91,560	1882	68,934
1877	84,893	1883	69,506
1878	71,972	1884	68,072

INSANITY.

The following statement, prepared by the Ministry of the Interior, shows the total number of insane persons admitted into public asylums, and the number and percentage of persons whose insanity has been caused by the abuse of spirituous liquors:

Periods.	Total number of insane admitted in asylums.			Number of persons insane by the abuse of spirituous liquors.			Percentage.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.
1861-'65	8,494	6,489	14,983	1,256	183	1,439	14.8	2.8	9.6
1866-'70	10,911	8,480	19,391	2,057	266	2,323	18.9	3.1	12.0
1871-'75	11,814	10,149	21,961	2,785	466	3,251	23.6	4.6	14.8
1876-'80	21,644	18,178	39,822	4,759	1,130	5,889	22.0	6.2	14.8
1881-'85	27,731	23,476	51,207	6,075	1,311	7,386	21.9	5.6	14.5

PARIS, *December 30, 1887.*

J. L. RATHBONE,
Consul General

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COTTON MACHINERY IN NINGPO.

There has been in operation here for more than three years forty treadle-gins (a description of them, I think, has been furnished by Mr. Kennedy, United States Consul-General).

Until some two months ago these gins were worked in a large building near this consulate. They take up but little space, about 18 inches wide and 30 inches long, made of iron manufactured in Japan. A company was organized in the spring of last year to build and have larger gins worked by steam. This building is now finished, situated about two miles from this consulate on the opposite side of the river (northwest). The building is of brick, foreign built, about 300 feet by 200 feet. It is cut off into various apartments, a ginning-room, packing-room, drying-room, office, etc.

The steam-machinery is now being put in place. The boiler is 60 inches wide, some 15 feet long, cylinder 12 inches, 22-inch stroke, can be made to equal 30-horse power. In the ginning-room I found the 40 hand-gins worked with a treadle placed in 4 tiers, 10 in a tier. One man works a gin. The work is hard, as frequently the man has to throw his whole weight on the treadle. They work the gin eighteen hours a day, the output being 240 pounds seed-cotton or 80 pounds lint-cotton for each gin. These gins are manufactured in Japan, and are an improvement on the little treadle-gin used by the cotton-growers. This little contrivance has two cylinders 10 inches in length, the upper cyilinder an inch in diameter, of smooth round iron, worked by a pedal or crank. At the further end of it is attached a narrow board with its ends weighted, so that it acts like a fly-wheel. The lower cylinder is 2 inches or a little more in diameter, made of maslieh wood unsmoothen. The cylinders are parallel and so close as to only allow the lint to pass through, dropping the seed on the inside. The lower cylinder being unsmooth catches the cotton and forces it through. I have seen these little machines worked by eight-year old children.

These Japanese gins, instead of two rollers, have two pieces of iron one and a half inch wide, one-eighth inch thick, dull sharpened on the edges, when the cotton passes through running outside of the stationary pieces of iron. A little above the center of the space between the knives through which the cotton passes is a leather cylinder. The leather forming the cylinder is glued upright. The cylinder is on the outside, and works against the stationary knives. Consequently it is a little rough, catches the cotton, pulls it through, leaving the seed on the inside. The gins to be run by steam are much larger, being 42 inches wide, and the leather cylinder 40 inches long and nearly 4 inches in diameter. There are twelve of them to be worked by steam-power. What their capacity will be I cannot say. These gins clean the seed better than our saw-gins. I compared our seed with them. The cotton ginned by them retains the strength of the fiber. It pulls the cotton from the seed. The cotton before being ginned is thoroughly dried in the drying-room. The cotton is picked very clean, and all trash or dirt is cleared

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from the seed-cotton before it is ginned. I have visited this new enterprise several times for the purpose of gaining information. I find that the stockholders are native Chinese; that after a good deal of opposition they have been granted the privilege of building and working steam machinery for the sole purpose of buying and ginning cotton, selling also some of the seed. They have agents in the cotton belt purchasing seed-cotton and transporting it to the gins. The cotton when ginned is packed into cotton domestic sacks, weighing 160 pounds. The sacks are as bulky as a ball of our cotton. The present price of this cotton is 16 Mexican dollars per bale, or about 7¾ cents per pound, our currency. Most of it is sold here, some shipped to Hong-Kong. The cotton that is brought here is shipped to the different ports of China, and is spun and woven by hand-wheel and the old primitive loom, and after being woven dyed generally a blue color, this color being universally worn by the poorer classes. I have called attention of the stockholders to our saw-gins, as I am satisfied that one of our 100-saw gins would do more work in a day than the twelve gins (gin-heads) can do in the same time. I have also called their attention to our cotton-presses. They ought to use the latter by all means, but the Chinaman is slow to adopt improvements. He has to take a long time to consider. This is the only cotton-gin in China, except the little cotton-machines used by farmers who raise cotton. This company informs me that if they are successful here they will establish one in Shanghai. The profits are more particularly in the sale of the seed. This is used for fertilizing, oil, and feeding stock. They find ready sale for the seed at 5 or 6 Mexican dollars per picul or 4 bushels, whilst our cotton planters sell at 60 cents to 80 cents per 4 bushels. The staple of the cotton here is short, from half an inch to five-eighths of an inch in the general run. I hope this new enterprise will be a success. — NINGPO, *April 8, 1888.*

THOS. F. PETTUS,
Consul.

COMMERCE OF TRIPOLI.

The commerce of Tripoli in 1886 reached the sum total of over 20,000,000 francs, almost equally divided between imports and exports, the former exceeding the latter by about 1,000,000 francs. As compared with 1885 both the volume of exports and imports show a decline of 10 to 15 per cent.

The development of the extensive relations of Tripoli with foreign countries is mainly due to a system of easy credit accorded to the importers. This, however, is subject to spasmodic contractions, when even the most solvent firms are looked upon with a certain degree of suspicion and distrust.

Merchants and manufacturers desirous of establishing trade with Tripoli will always have to be liberal in extending credits; but the utmost scrutiny and discretion should prevail in according them, and great judgment should be exercised to avoid trusting too implicitly commission merchants and agents who, without being over scrupulous in soliciting orders and extending credits, are in the main animated by the selfish motive of increasing commissions.

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Some of the articles which might be profitably imported from the United States are alcohol, canned provisions, carpenters' tools, furniture, hardware, iron bedsteads, lamps, locks, mechanics' tools, patent medicines, printed cottons, sewing machines, stoves suitable for petroleum, wood for building, and building materials, Yankee notions, etc.

Alcohol and rum come largely from the United States, Austria and France ranking next. The amount imported during 1886 was estimated at about 175,000 francs. Iron, steel, copper, tin, lead, zinc, etc., are supplied by England, France, Austria, Belgium, and Germany. Paper is imported from Austria, Germany, France, and Italy. Woolen fabrics come mainly from England, Germany, and Austria. Skins and leather are supplied by France, a small quantity also coming from Italy.

Hardware, small tools, etc., of American make would find a ready market. Germany almost wholly monopolizes this branch, her share of this trade amounting to very nearly 100,000 francs, while all other countries combined furnish but about 30,000 francs.

In woolen yarns there is considerable activity, there being many hand looms in operation for the weaving of woolen stuffs for interior and local consumption.

The following statement shows the value of imports from all countries during the year 1886:

	Francs.		Francs.
Wheat	525,000	Gold and silver ware	77,000
Barley	80,000	Iron and hardware	310,000
Beans	33,000	Arms and ammunition	80,000
Peas	10,000	Metals and metal goods	39,000
Rice	155,000	Skins (raw and tanned)	66,000
Flour	25,000	Charcoal	72,900
Oil	405,000	Hard coal	63,000
Provisions	865,000	Wood (fuel)	77,000
Woolen stuffs	1,475,000	Soap	37,000
Cotton yarns	775,000	Perfumes and extracts	74,000
Cotton stuffs	3,700,000	Hardware	127,000
Silk stuffs	210,000	Amber (real and imitation)	54,000
Raw and waste silk	182,000	Indigo	50,000
Wine	63,000	Achat (real and imitation)	113,000
Alcohol and spirits	60,000	Paper	33,000
Glassware	175,000	Drugs and pharmaceutical products	77,000
Earthenware, Fayence, etc	50,000	Ornaments, jewelry, etc	15,000
Wood (building)	130,000	Horses and cattle	34,000
Building materials	17,000	Tobacco	335,000
Furniture	25,000	Gunpowder	64,000
Wool	50,000		
Total			10,808,000

The exports during the same year were as follows:

	Francs.		Francs.
Alfa	3,740,000	Fruits	96,000
Ostrich feathers	3,824,000	Soap	12,000
Ivory	840,000	Woolen and cotton stuffs	234,000
Grain	118,000	Henna (dyeing stuff)	83,000
Hides (raw and dried)	124,000	Silver ornaments	26,000
Wool	60,000	Sponges	300,000
Soda	37,000	Sundries	450,000
Red pepper	10,000		
Total			9,954,000

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The imports were distributed among the following countries:

	Francs.		Francs.
United States	71,500	Austria	595,000
Great Britain	5,577,000	Italy	531,000
Turkey	1,331,000	Switzerland	225,000
Tunis	995,000	Belgium	138,000
Germany	688,000	Egypt	35,500
France	601,000		
Total			10,808,000

The annexed table shows the maritime movement during the year 1886:

Nationality.	Arrived.		Cleared.	
	Ships.	Tons.	Ships.	Tons.
British	99	54,416	96	52,426
Turkish	228	19,112	206	18,884
Italian	102	57,580	101	57,114
French	64	63,974	64	63,974
Greek	30	1,278	27	1,217
Tunisian	79	1,279	79	1,279
Montenegro	14	1,575	14	1,575
Egyptian	2	440	2	440
Total.	618	199,654	592	196,909

The trade figures for 1887 are not yet accessible; but it is believed they will scarcely reach those of 1886, as commerce in general has been stagnant throughout the entire regency. — BEIRUT, *April 12, 1888.*

ERHARD BISSINGER,
Consul.

CANTON RIVER OBSTRUCTIONS.

The Tsungli Yamên has refused to order the removal of the obstructions in Pearl River, near Canton. The foreign ministers do not accept the decision as final. — PEKING, *March 19, 1888.*

CHARLES DENBY.

REPORT OF THE IMPERIAL EMIGRANT COMMISSIONER FOR 1887.*

[TRANSMITTED BY CONSUL-GENERAL RAINE.]

The total number of German and foreign emigrants forwarded from the three German ports of Hamburg, Bremen, and Stettin shows again an increase. Since the transportation of emigrants from the German ports has been supervised by an imperial commissioner, it has been regularly observed that, except in 1870–'71, when affairs were influenced by the war, emigration would increase for a number of years and then decrease again for some time. In 1872 emigration reached the highest number, 154,284, decreased 1877 to 41,824, reached again 1881 247,336, and fell 1885 to 155,147. 1886 and 1876 witnessed another increase. It is noticeable that the proportion of German to foreign emigrants during the different years was not the same. The number of emigrants not German increased from 1881 to 1886, but decreased in 1887, while the number of German emigrants receded between 1881 and 1886, and rose again in 1887.

*A general report on emigration from Germany will be found in No. 76. The emigration for 1886 was printed in No. 88, p. 174.

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From German ports were forwarded:—

Year.	German emigrants.	Foreign emigrants.	Total.
1871	75,912	26,828	102,740
1872	124,534	30,290	154,824
1873	100,040	32,377	132,417
1874	43,536	32,144	75,680
1875	28,707	27,874	56,581
1876	23,880	20,720	50,600
1877	20,128	21,696	41,824
1878	23,241	23,130	46,371
1879	29,238	22,520	51,763
1880	94,966	54,803	149,769
1881	184,369	62,967	247,336
1882	169,216	62,524	231,740
1883	143,951	57,363	201,314
1884	126,511	68,986	195,497
1885	88,900	66,247	155,147
1886	66,647	99,827	160,474
1887	79,473	92,779	172,452

Since July 1, 1887, a new law relative to emigrants, and an order of May 13, 1887, have been enforced in Hamburg. According to the new law a larger space than heretofore must be allowed to steerage passengers, namely, 2.85 cubic meters, against 72 cubic feet (former Hamburg measure), in which case a steerage deck height of more than 2.40 meters is taken as only 2.40 meters. The minimal height of the spaces is fixed at 1.83 meters. Besides this a certain space on the upper deck is provided for, which must be left free for the steerage passengers for exercise in fresh air. The companion way and the stairs leading to the steerage must be widened and increased wherever they do not correspond with the provisions of the act. The width of the berths must be likewise enlarged. The number, size, and equipment of small boats and other safety measures are also prescribed.

In former years the introduction of a provision which made it obligatory to furnish passengers indirectly forwarded by way of an intermediate English port with full board caused considerable opposition on the part of a majority of shipping agents. It was therefore expected that the new act, which provided that no distinction shall be made in the treatment of passengers forwarded directly or indirectly, might cause a shrinkage in indirect transportation, considered so objectionable in many respects; but the report shows that notwithstanding this law a considerable number of emigrants were forwarded by the indirect way.

A regular rigid inspection of all vessels shipping emigrants indirectly is provided for in the new act, while the old law did not make such inspection obligatory.

In consequence of the new act the passengers' rooms, boats, deck surfaces, etc., of all vessels employed in passengers' traffic, both for direct and indirect shipment, had to be remeasured. In each steerage room a notice is put up showing the cubic capacity, as well as the number of the persons to be sheltered in such room, so that passengers can easily convince themselves whether or not more persons than the law allows are in the room. At each inspection the number of the sleeping berths located in the single rooms is ascertained, and a corresponding statement entered into the protocol of supervision.

On board of some ships of the Hamburg-American, Packetfahrt Stock Company, whose construction permitted this to be done, the passengers' room of the steerage (as allowed by law) was divided into special chambers for sheltering in each 8 to 10 persons at most. These chambers, provided with berths lying lengthways with the ship, are located on the board sides of the vessels, and leave the whole middle of the steerage deck, which is sufficiently furnished

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with tables and benches, free for the use of the passengers. Similar arrangements are made on the mail steamers of the North German Lloyd of Bremen, which are placed on the East Asiatic and Australian lines.

EMIGRANT BOARDING HOUSES.

At the lodging-houses for emigrants at Hamburg, which heretofore were greatly inferior to the majority of the Bremen lodging-houses, many improvements have been made last year. The double rows of sleeping berths, which formerly were allowed in the lodging-houses, are gradually done away with. Every emigrant boarding-house keeper requires new confirmation annually, and is ordered to abolish double berths. Thus far six of the least desirable lodging-houses have ceased to exist, and two others are expected to disappear in 1888.

In each Hamburg lodging-house notices, composed in seven different languages, are put up, reading as follows: "Emigrants receive protection and advice gratuitously at the emigration office at Hamburg, No. 75 Neuerwall, 2d floor, which is open daily from 9 to 6 o'clock." It has been noticed that in North America the custom to buy passage tickets for emigrants from Europe is apparently on the increase, entailing many evils. Such tickets are bought mostly upon the statement that they are intended for relatives of persons already residing in America. Whether such statement is always true, or whether the fellow countrymen living in America wish to procure in this manner only laborers, who in consequence of the advanced passage money are perhaps compelled to enter into a many years contract, can not be controlled here, the emigrants either refusing all information whatever, or, as it is mostly the case, asserting that they are to follow their relatives, who have found a good living on the other side of the ocean. Worse is the circumstance that the immigrant agent residing at New York sells passage tickets payable in instalments. As soon as the first instalment has been paid by the transmarine ticket buyers the European emigrant concerned receives an order for a free ticket, to be presented at the seaport to a forwarding agent stationed there. If the ticket buyer in America has in the meantime paid for the ticket in full all is right; but if he has not done so, the American agent telegraphs to the forwarding officer on this side of the water that the order in question is to be ignored. In the meantime the emigrant, owing to information received, has perhaps broken off all his connections with his old home and may already be on the way to the shipping port, where want and distress await him. Some of such cases have in reality occurred.

Irrespective of the deplorable total loss of the North German Lloyd steamer *Oder*, on her trip from East Asia to Europe, the German passengers' ships have not met with disaster, and escaped epidemic diseases last year.

The inspection of emigration vessels and of lodging-houses took place in the same manner as in previous years, in most cases jointly with the supervisory authority appointed for the port concerned. Thus all emigrant vessels of the three German ports, Hamburg, Bremen, and Stettin, have been inspected.

Since the 1st of July, 1887, when the introduction of obligatory inspection of all vessels employed in indirect shipment, via English ports, went into force, Hamburg's supervisory labors increased to such an extent that the imperial commissioner of emigration had to confine himself in some instances to a mere superinspection, almost every week cases occurring when four-fifths of the vessels had to be examined on one and the same day.

The embarkation and sheltering of emigrants on board of the vessels have been supervised as much as possible. In quartering passengers on shipboard frequently difficulties arose in the case of single travelers, especially females, who objected to occupy separate apartments, and attempted to remain with families or even persons of the other sex, whom they either knew at their homes or whose acquaintance they made on the way to the port of departure. Nothwithstanding, the prescribed separation of the sexes on board of the vessels has been enforced in all cases.

Now follow some statistics regarding last year's emigration. Forwarded from and via the three German ports, Hamburg, Bremen, Stettin, 172,452 persons, in 1,138 vessels, viz: In

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928 vessels, via Hamburg, 71,007 persons; in 199 vessels, via Bremen, 99,476 persons; in 11 vessels, via Stettin, 1,969 persons. Of the vessels on board of which they were forwarded, 1,127 were steamships and 11 sailing vessel. The latter were, however, not considered emigrant vessels, shipping but few passengers and not subjected to supervision. Of the persons forwarded via Hamburg, were 45,454 persons directly shipped in 157 steamers; 24,453 persons indirectly shipped in 599 steamers; 1,100 persons in 161 steamers and 11 sailing vessels, not being emigrant vessels; in all, 71,007 persons, of which were 44,261 males and 26,746 females; or 37,028 adult men, 19,775 women, 5,476, boys, and 5,131 girls, between one and ten years, and 1,757 male and 1,840 female nurse children; or 34,298 persons in 10,579 families, 38,747 single male and 7,962 female persons.

Directly forwarded were 28,437 persons in 60 trips by the Hamburg-American Packet Steamship Company; 14,403 persons persons in 47 trips of the Union line; 2,614 persons in 50 trips by the forwarding agent Lobedaur, and 1,100 persons in 171 trips on vessels carrying less than 55 passengers; in all, 46,554 persons.

In 1887 71,007 persons emigrated, as follows:

January	2,293	July	6,585
February	2,908	August	6,792
March	6,191	September	6,484
April	6,021	October	7,018
May	10,033	November	6,059
June	7,071	December	3,552

From non-European ports 9,841 persons returned to Hamburg, among them 32 lacking the required means of support were refused landing in North America. Of these 32 persons, 11 were natives of Germany, 9 of Prussia, 10 of Austria, and 2 of Denmark. Other persons lacking means of support arriving from England in Hamburg were Austrians, 4; Russians, 400; Roumanians, 4; Swedish, 1, and 2 Chinese.

Of 99,476 persons forwarded via Bremen, 99,350 persons were shipped directly in 196 steamers of the North German Lloyd, and 126 persons indirectly via Leith and Glasgow. Among these persons there were 57,128 males and 42,348 females emigrating in the following months of 1887:

January	2,436	July	6,810
February	4,770	August	8,733
March	11,392	September	8,830
April	13,108	October	9,379
May	14,547	November	7,067.
June	9,940	December	2,474

From non-European ports returned to Bremen, 26,020. For want of means of support none were refused in North America, but among them were some people whose condition did not conform to the requirements of the emigration laws of New York.

Via Stettin, in all, 1,969 persons were directly forwarded in 11 steamers, all to New York, Among them were 987 male and 982 female persons, viz: 1,331 adults, 523 children between one and twelve years of age, and 115 nurse children. With the exception of February, a steamer left Stettin every week during the year with emigrants. One hundred and sixty-eight persons returned from New York to Stettin, but among them were none whose landing was refused in America.

The vessels from Stettin were compelled on account of their draught to take their last freights and equipment at Swinemünd. Passengers were carried in small steamers or by rail to Swinemünd. About 60 per cent. of passengers forwarded from Stettin were provided with passengers' tickets purchased in America (free tickets).

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Total emigration via German ports in the year 1887.

From which countries.	Number sailing from—			Number sailing to—												
	Bremen.	Hamburg.	Stettin.	United States.	British North America.	Mexico and Cent. Amer.	West Indies.	Brazil.	Argentine.	Peru.	Chili.	So. America.	Africa.	Asia.	Australia.	Total.
Belgium	9	1	.....	7	.....	.....	.....	.....	1	.....	.....	.....	.....	1	1	10
Denmark	2,125	1,779	11	3,523	5	2	26	115	161	.....	3	4	6	6	64	3,915
France	12	20	.....	25	.....	.....	.....	2	1	.....	.....	.....	3	.....	1	32
Great Britain	27	27	.....	35	2	.....	.....	4	5	.....	.....	.....	1	4	3	54
Italy	30	104	.....	64	.....	1	.....	11	38	.....	1	2	3	1	13	134
Luxemburg	4	4	.....	4	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	8
Netherlands	93	18	.....	28	.....	.....	1	6	10	.....	.....	.....	.....	64	2	111
Bohemia	6,839	2,850	94	9,690	2	1	1	54	10	.....	5	17	.....	.....	3	9,783
Other Austrian States	4,004	5,830	30	9,537	31	6	.....	90	165	6	11	5	2	.....	11	9,864
Hungary	8,678	9,598	59	18,305	2	.....	.....	6	20	.....	.....	1	.....	.....	1	18,335
Total Austria-Hungary	19,521	18,278	183	37,532	35	7	1	150	195	6	16	23	2	.....	15	37,982
Portugal	.....	11	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	10	.....	.....	11
Roumania	52	1,014	.....	1,007	51	.....	.....	1	7	.....	.....	.....	.....	.....	.....	1,066
European Russia	6,873	22,482	199	28,418	234	4	.....	42	768	.....	3	12	25	7	47	29,554
Sweden and Norway	5,387	672	45	5,676	2	.....	.....	302	46	.....	.....	4	2	1	71	6,104
Switzerland	171	73	.....	191	.....	.....	.....	12	12	.....	.....	.....	12	9	8	244
Servia	5	3	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Spain	2	1	.....	2	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	3
European Turkey	1	128	.....	129	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	129
Bulgaria	.....	6	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
United States of America*	9,614	3,084	6†	12,665	.....	.....	.....	2	16	.....	.....	.....	7	1	13	12,704
Other non-European countries	260	654	.....	158	6	14	15	246	192	4	38	58	43	42	98	914
Total from non-German States	44,186	48,359	444	89,479	335	28	43	893	1,451	10	61	103	114	136	336	92,989
Total from the German Empire	55,290	22,648	1,535	76,115	268	54	44	920	809	17	135	125	302	226	458	79,473
Grand total	99,476	71,007	1,979	165,594	603	82	87	1,813	2,260	27	196	228	416	362	794	172,462
Forwarded via Bremen	99,476	.....	.....	97,070	.....	.....	.....	608	675	.....	.....	.....	20	318	785	99,476
Via Hamburg	.....	71,007	.....	66,545	603	82	87	1,205	1,585	27	196	228	396	44	9	71,007
Via other Prussian ports	.....	.....	1,979	1,979	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,979

* Inclusive of travelers forwarded on emigration ships.

† As country of origin is given merely "North America," or "America."

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States or provinces of origin.	Number of emigrants from the German Empire.			Departures via Bremen.	Departures via Hamburg.	Departures via other Prussian ports.	Number going to the United States of America.		Number going to British North America.		Number going to Mexico and Central America.		Number going to the West Indies.	
	Male.	*Female.*	*Total.*				*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*
Provinces—East Prussia	926	836	1,762	938	714	110	883	812	18	16	1	.....	1	.....
West Prussia	5,992	5,986	11,978	8,579	3,036	363	5,931	5,939	26	25	1	2	.....	.....
Brandenburg (with Berlin)	2,367	1,887	4,254	2,069	2,029	156	2,047	1,725	9	9	4	2	2	.....
Pomerania	3,480	3,242	6,722	4,388	1,706	628	3,410	3,193	10	12	1	.....	2	.....
Posen	4,455	4,235	8,690	5,939	2,531	220	4,411	4,196	18	25	.....	.....	.....	.....
Silesia	1,587	1,165	2,752	1,612	1,109	31	1,437	1,112	2	8	.....	.....	.....	.....
Saxony	860	563	1,423	860	557	6	703	525	14	9	1	.....	3	.....
Schleswig-Holstein	2,256	1,907	4,163	685	3,473	5	2,080	1,826	6	3	7	.....	4	1
Hanover	3,461	2,528	5,989	5,071	918	.....	3,288	2,459	5	5	2	.....	3	.....
Westphalia	869	592	1,461	1,288	173	.....	813	564	2	3	3	.....	.....	.....
Hessen-Nassau	1,688	1,472	3,160	2,757	403	.....	1,623	1,436	4	4	.....	.....	1	.....
Rhineland	867	544	1,411	1,222	189	.....	777	518	.....	.....	.....	.....	2	1
Hohenzollern	16	19	35	23	12	.....	15	19	.....	.....	.....	.....	.....	.....
Bavaria (on the right of Rhine Palatinate)	4,256	3,629	7,885	7,279	596	10	4,173	3,603	2	.....	3	.....	1	.....
	395	366	761	729	32	.....	386	363	2	.....	.....	.....	.....	.....
Saxony	1,312	917	2,229	1,364	861	4	1,149	858	.....	.....	1	2	.....	.....
Würtemberg	2,355	2,005	4,360	3,748	612	.....	2,304	1,979	1	.....	.....	.....	1	.....
Baden	725	765	1,490	1,290	200	.....	683	754	.....	.....	.....	.....	1	.....
Hessen	888	720	1,608	1,401	207	.....	865	709	.....	1	.....	.....	.....	1
Mecklenburg-Schwerin	766	653	1,419	427	990	2	714	618	6	10	1	.....	.....	.....
Saxe-Weimar	205	127	332	257	75	.....	195	125	.....	.....	.....	.....	.....	.....
Mecklenburg-Strelitz	86	69	155	85	70	.....	84	66	1	3	.....	.....	.....	.....
Oldenburg	540	456	996	944	52	.....	511	445	.....	.....	1	.....	.....	.....
Brunswick	141	89	230	153	77	.....	115	84	.....	.....	.....	.....	.....	.....
Saxe-Meiningen	133	96	229	181	48	.....	132	96	.....	.....	.....	.....	.....	.....
Saxe-Altenburg	38	20	58	30	28	.....	32	18	.....	.....	.....	.....	.....	.....
Saxe-Coburg-Gotha	126	101	227	203	24	.....	123	101	.....	.....	1	.....	.....	.....
Anhalt	54	34	88	56	32	.....	41	32	.....	.....	.....	.....	.....	.....
Schwarzburg-Sondershausen	27	22	49	41	8	.....	25	22	.....	.....	.....	.....	.....	.....
Schwarzburg-Rudolstadt	45	36	81	57	24	.....	45	36	.....	.....	.....	.....	.....	.....
Waldeck	42	47	89	80	9	.....	41	47	.....	.....	.....	.....	.....	.....
Reuss (junior line)	24	18	42	36	6	.....	21	16	.....	.....	.....	.....	.....	.....
Reuss (senior line)	62	41	103	74	29	.....	59	41	.....	.....	.....	.....	.....	.....
Schaumburg-Lippe	15	16	31	25	6	.....	15	16	.....	.....	.....	.....	.....	.....
Lippe	46	42	88	86	2	.....	45	40	.....	.....	.....	.....	.....	.....
Lübeck	60	45	105	20	85	.....	48	36	.....	.....	2	.....	.....	.....
Bremen	530	469	999	924	75	.....	460	450	.....	.....	4	.....	2	.....
Hamburg	1,122	792	1,914	282	1,632	.....	743	653	6	3	14	1	8	10
Alsace-Lorraine	63	42	105	87	18	.....	56	40	.....	.....	.....	.....	.....	.....
Total	42,880	36,593	79,473	55,290	22,648	1,535	40,543	35,572	132	136	47	7	31	13

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German emigrants via German ports to transmarine countries during the year 1887, etc.—Continued.

States or provinces of origin.	Number going to Brazil.		Number going to the Argentine Republic.		Number going to Peru.		Number going to Chili.		Number going to other South American States.		Number going to Africa.		Number going to Asia.		Number going to Australia and Polynesia.	
	Male.	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*	*Male.*	*Female.*
Provinces—East Prussia	13	5	1	.....	.....	.....	1	.....	.....	.....	2	2	1	.....	5	1
West Prussia	16	14	4	1	.....	.....	1	1	.....	.....	3	.....	2	.....	8	4
Brandenburg (with Berlin)	73	37	86	43	.....	.....	10	12	11	6	30	7	54	22	41	24
Pomerania	10	19	21	8	1	.....	1	2	2	1	3	.....	4	.....	15	7
Posen	8	8	6	3	.....	.....	2	1	.....	.....	4	.....	1	.....	5	2
Silesia	72	27	21	1	1	.....	2	.....	5	5	18	6	4	.....	25	6
Saxony	19	12	34	11	.....	.....	4	1	7	.....	6	.....	3	5	6	.....
Schleswig-Holstein	21	21	38	22	.....	.....	10	.....	12	6	30	4	16	6	32	18
Hanover	46	22	34	22	.....	.....	9	1	7	2	30	3	4	1	33	13
Westphalia	24	23	10	1	4	.....	4	.....	2	.....	2	.....	.....	.....	5	1
Hessen-Nassau	12	9	18	5	.....	.....	10	6	3	2	1	.....	8	4	8	6
Rhineland	33	10	28	13	.....	.....	5	.....	1	2	6	.....	5	.....	10	.....
Hohenzollern	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bavaria (on the right of Rhine Palatinate)	23	4	41	18	.....	.....	.....	.....	2	2	3	1	.....	.....	8	1
	2	2	2	1	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	1	.....
Saxony	62	22	41	21	1	.....	7	2	11	2	11	1	6	2	23	7
Würtemburg	14	8	11	3	.....	.....	2	.....	.....	.....	8	6	4	1	10	8
Baden	15	7	14	2	.....	.....	1	.....	1	.....	5	1	2	1	3	.....
Hessen	6	3	6	3	.....	.....	1	.....	.....	.....	1	.....	.....	.....	9	3
Mecklenburg-Schwerin	15	17	13	4	1	.....	1	2	6	1	4	.....	1	1	4	.....
Saxe-Weimar	4	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	1
Mecklenburg-Strelitz	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Oldenburg	9	.....	7	8	.....	.....	.....	.....	1	.....	1	.....	1	.....	9	3
Brunswick	6	1	10	2	.....	.....	.....	.....	2	.....	1	.....	1	1	6	1
Saxe-Meiningen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Saxe-Altenburg	1	1	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	2	.....
Saxe-Coburg-Gotha	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....
Anhalt	9	2	3	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Schwarzburg-Sondershausen	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Schwarzburg-Rudolstadt	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Waldeck	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reuss (junior line)	1	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reuss (senior line)	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
Schaumburg-Lippe	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lippe	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....
Lübeck	4	1	2	1	.....	.....	.....	.....	.....	1	3	6	1	.....	.....	.....
Bremen	12	6	13	4	.....	.....	5	1	1	.....	4	2	16	3	13	3
Hamburg	76	29	92	41	7	1	20	8	16	4	62	17	34	9	44	16
Alsace-Lorraine	.....	1	4	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	1	1
Total	608	312	569	240	16	1	98	37	91	34	244	58	169	57	332	126

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COMMERCE BETWEEN RUSSIA AND BRAZIL.

According to the *Moscow Gazette* of April $\frac{2}{15}$, 1888, the Russian ambassador to Brazil, M. Ionin, has addressed a letter to the president of the Society for the Promotion of Russian Trade and Commerce, Count N. P. Ignatieff, calling his attention to the favorable opportunity offered at the present moment for establishing commercial relations between Russia and Brazil.

M. Ionin is of opinion that kerosene and other productions of naphtha are likely to find a safe and profitable market there, and suggests that the larger Russian producers of naphtha should send their representatives to Rio Janeiro and Buenos Ayres in order to study, on the spot, all particulars of the trade, and ascertain the conditions under which a regular export trade of naphtha could be established from the Black Sea ports to South America.

The *Novosti* reports that at a meeting held on the 31st of March last by the society above referred to the suggestions of M. Ionin were most favorably considered, and a resolution was passed that the attendance of persons interested in the naphtha trade be invited to attend, and the subject then thoroughly gone into.—Moscow, *April 16, 1888.*

N. W. HORNSTEDT,
Acting Consul.

AMERICAN SCHOOLS IN SYRIA.

I have recently visited Cairo, Jaffa, Jerusalem, Beirut, Mersine, and Smyrna and conferred with our consuls in these several districts, also with the governors and governors-general of the respective vilayets in the empire. I desire to acknowledge the universal courtesy I met with on the part of these officials and to express my satisfaction as to the very pleasant relations existing between them and our consuls.

While at Cairo His Highness the Khedive showed me every possible courtesy. I had so arranged my trip that I might be at Beirut at about the time the order for the reopening of the schools of the American Presbyterian Board of Missions in the vilayets of Syria and Beirut was to go into effect. I am gratified to report that fifteen of said schools had been reopened in anticipation of my arrival, and that orders were received from the Porte for the immediate reopening of five additional schools in the Syrian vilayet the day I left Beirut—namely, April 4. These are pretty much all, if not the entire number, that the missionaries care to reopen at this time. Such was my understanding of their wishes when they waited on me in a body while at Beirut to express their gratification upon the result. I desire in this connection to commend the zeal, tact, and energy shown by Mr. Bissinger, our consul at Beirut, and to testify to the valuable aid he afforded in the accomplishment of the result.—CONSTANTINOPLE, *April 24, 1888.*

O. S. STRAUS.

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FORESTS OF NORWAY.

The French Consul at Christiania gives the following information on the forests of Norway:

The forests cover a territory of 19,752,393 maal, or 4,803,216 acres, divided as follows:

	Wooded.	Unproductive.	Total.
State	7,748,967	9,895,738	17,644,705
Districts and communes	1,762,348	345,840	2,107,688
Total	9,511,315	10,241,578	19,752,393

The average value of hectare (2.47 acres) of forest is 43 crowns (about $11.60).

CORN LAWS OF PORTUGAL.

Portugal has imposed [an] additional duty on cereals and flour not shipped previous to the 4th instant, of from 25 to 30 per cent.—LISBON, *May 10, 1888.*

E. P. C. LEWIS.

COST OF MANUFACTURING PRINT CLOTHS.

I submit the results of an inquiry entered into to obtain the cost of manufacturing print cloth in Massachusetts, Lancashire and Switzerland. When I started on this inquiry into the comparative labor-cost and the general cost in certain specified industries in the different countries which are now competing in the neutral markets of the world, I was well aware that I should have to prepare myself against the objection raised with great force against such inquiries, to wit, that as a rule they do not cover the same article; that they deal with a variety of articles, although under one generic term; that even if the same articles by name is given, so many variations exist in width, in fineness and other characteristics that the latitude left for doubt would very materially affect otherwise valuable suggestions contained in the facts brought out. For every comparison therefore where the article went beyond a primary stage in the scale of production, and is known all over the world under a certain name or number, such as yarn, etc., I provided myself with samples from American manufacturers and made these samples the subject of inquiries in the countries where the same article is a subject of regular manufactures. I took print cloth samples from an American mill, with an analysis of cost of labor and materials and incidental expense to base my inquiries on. The goods are known as 64x64; *i. e.*, 64 threads to the inch warp and weft in America; in Lancashire 16x16 to the quarter inch, which is the same as 64x64 to the inch; in Switzer-

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land the account is upon about the same basis. The width is 13 inches in America and England, and 70 centimeters in Switzerland, which is on a basis of 93 centimeters to the yard, being equal to $27\frac{4}{81}$ inches.

We have therefore here a fair basis on which to proceed. Obviously all the elements of composition are of the same nature, and price comparisons are easily found. Still, upon so simple an article, and with all the features of similarity, quite a number of disparities exist which make a comparison difficult and call for explanation.

First, the system of manufacture. In America the cloth mill is, so to speak, a complete unit; one management directs all the operations. In the print-cloth mill the cotton enters the mill and leaves it baled up as print cloth, and in most cases boxed up as printed calico. In England, as a rule, the spinning mill is a separate concern. The maker of the cloth buys the yarn from the spinner the same as the printer buys the cloth from the cloth maker. Even some weaving mills get their yarn sized (dressed) by outside dressers. The same subdivisions in manufacturing operations exist in Switzerland too. Recently, however, some mills have been erected in England (Lancashire) where all operations are united under one concern, much on the American plan. These, however, are the exceptions. The rule is as mentioned, and the separation of accounts is the result. Although the cost of labor can be taken per pound in spinning as well as in weaving in America and the other mentioned countries (but even here the basis varies with the number of yards to the pound), yet the other items of expense can not be set side by side, as they are separated in the one, and non-separated in the other instance.

Secondly. While the number of threads to the inch is the same, the yarn numbers are different,—similarity in the weaving but differences in the spinning. The numbers of yarn used in America are 28 for the warp and 36 to 38 for the weft. In England the yarn numbers are 32 warp and 40 to 42 weft; and in Switzerland the count runs about two numbers higher. In America the average would be about 33; in England 37 to 38, and in Switzerland, say 39 to 40. The spinning rates per pound in the medium numbers, upon which the report treats, are about the same in America and Lancashire (see my report of the cost of spinning cotton yarn in New England and in Lancashire, in No. 70 Consular Reports, October, 1886). The spinning prices for number 33 is 75 cents, for number 37 84 cents per pound, and for number 39, 93 cents. From the weekly earnings of spinners the wages of the back boys are deducted in the Fall River mills and in Lancashire. The use of coarser numbers gives American manufacturers a benefit of 0.09 cents, being equal to $\frac{9}{10}$ths of a mill in the pound of printing cloth over the English manufacture and 0.18 cents, $1\frac{8}{9}$ of a mill, over the Swiss manufacture. The gain from the use of finer yarns is, however, so great in a yard of print cloth, that it easily balances all the differences in favor of the American price, and leaves a handsome percentage over in the hands of the foreign manufacturers, as will be shown in the following pages.

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Third, waste. The loss of waste in spinning in a particular cotton-mill in Massachusetts, employing 110,000 spindles, and consuming 160,000 pounds of cotton a week, is 18 to 20 per cent. gross waste and 14 per cent. net waste,—that is to say, after deducting the salable value of the waste from the gross loss in spinning. This is one of our best print mills, which manufactures printed calicoes from the cotton upwards, and upon whose statements to me I have based these comparisons. Another mill in Lowell gave me the same percentage of net and gross waste in spinning. Both are economically conducted mills, the largest in the country, and in every sense run under the best working methods in America. The English spinning mill whose working account I made the basis of this comparison gives for the quarter ending February 25 last 1,466,923 pounds of cotton from which was produced 1,356,022 pounds of yarn, the loss being 110,901 pounds, or 8.185 per cent. on the yarn spun. This varies somewhat with the waste account of the same mill, which for another period was given me as 8.82 per cent. Besides, in the quarter's business the sum of £784 15*s.* 5*d.*, or $3,800, was realized from the sale of waste from spinning, or per pound of yarn 0.292 cents from 0.892 cents gross, net 0.600 cents, which reduces the net waste to about 5½ per cent. This is, however, the lowest wastage account that I have come across. The rate of waste, however, depends on the quality of the cotton used, and a manufacturing merchant of Manchester, who controls a variety of mills, and who has made a profound study of the cotton industry, gives me the loss in waste for strict middling N. O. as 10 per cent., middling N. O. as 13 per cent., and low middling, 15 per cent. One farthing per pound is said to be realized from the sale of waste. This seems, however, too liberal an estimate of the selling value of waste. But, naturally, the salable residue of waste to the pound of yarn spun increases with the greater gross waste. The above 0.292 cents is certainly correct, being a transcript of the actual working account of the mill. But still I am told by a spinner in Salford, whose mill contains the latest improvements and machinery, and with whom I compared notes, that, even with the finer cotton used by the mill whose work account I am describing, this is an exceptionally low percentage of net waste. It was readily admitted when I mentioned the name of the concern, however, that the mill worked every part of its business with exceptional advantage.

Though in American print cloths the cheaper kinds of cottons are used, yet there seems to remain still a greater percentage of net waste than in English mills, which probably will find explanation from our spinners, and which I can not venture to give.

In the inquiry recently instituted by the Manchester Chamber of Commerce into the relative advantages of the Bombay and Lancashire cotton spinner in competing for the trades in the far east, the waste in Surat cotton in spinning, both in Lancashire and Bombay, is given as 25 per cent. of the yarn produced. These cheap cottons, however, are only used in the spinning of coarse yarns exclusively in India and in Lancashire, with a slight mixture of low American cotton. Others state the waste of Surat cotton mixed

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with low American cotton so as to bring up the cost of cotton to 10 cents as 15 per cent. in Lancashire. It is said that of late Surat cotton brought to the market is improving in quality and the wastage decreasing. In Switzerland 15 per cent. of the waste is also calculated in spinning, the same as in America. This, however, seems to be the gross waste and not the net waste, and needs further investigation.

I. THE COST OF SPINNING.

A. Lancashire Mill.

Output of quarter ending March 25, 1888, 1,356,022 pounds of No. 37½ yarn.

	£	s.	d.
Wages	4,759	6	3
Salaries	65	0	0
Power and taxes	1,143	7	5
Supplies	668	3	1
Repairs and depreciation	1,695	16	1
Interest on loan £954 8 7			
Bank commission and interest 110 18 0			
	1,065	6	7
Carriage	523	19	0

PER POUND OF YARN.

	Pence.	Cents.
Wages	.842	1.684
Other wages and salaries	.012	.024
Total wages	.854	1.708
Power and taxes	.209	.418
Supplies	.120	.240
Repairs and depreciation	.300	.600
Interest on loan together with bank commission and interest	.180	.360
Carriage	.090	.180
	1.753	3.506

The account of the mill is as follows:

	Pence.	Cents.
Cost of raw cotton	5.456	10.912
Waste	.446	.892
	5.902	11.804
Wages	.854	1.708
Fixed charges	.526	1.052
Working expenses	.385	.770
Discount 2 per cent	.156	.312
	7.823	15.646
The selling price of yarn is	8	16
Leaving	.177	.354
Sale of waste	.146	.292
Total profit and loss,	.323	.646

The selling price of yarn, of course, varies according to the demand and the conditions of trade. The margin here of .646 cents at the selling price of 8d. leaves a profit on the turnover mentioned above of about $9,000, or a little over £1,800. The actual sum carried over to profit and loss was £1,848 16s. 10d. This, as stated before, is one of the best mills in Lancashire, and it must not at all be inferred that spinning mills in general now

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produce like good results and realize not only interest on the loan capital, but also a liberal dividend on the share capital. This mill has declared during the year a dividend of over 10 per cent., besides in the last quarter writing £449 16*s.* 10*d.*, or $2,188 to the credit of the reserve fund. This high rate of dividend is due to the fact that the greater part of the capital of the mill is loan capital and the smaller part only share capital. All spinning mills in England, except private ownership, of course, have organized on this plan of share and loan capital. The Oldham mills, as mentioned in the former report referred to above, are usually on half and half. This one, however, stands one to two, a rate of one share capital and two loan capital. The share capital is of 27,980 shares of £2 each = £55,960 all paid in. The loan capital is, permanently invested, £92,828 19*s.* 5*d.*, with a floating loan of £11,334. This makes it possible, at the present low rate of interest at which money can be procured, to carry over a much larger share of the profits account to share capital than if the mill were organized principally upon shares. While the spinning wages are here given as 1.708 cents per pound, the same number of yarn, as I am told, can not be spun by older mills for less than 2 cents per pound labor-cost. The managing expenses are extremely light; the directors are all business men and devote their time, free of charge, to the interests of the mill. They take a great pride in the mill, and its prosperous management is shown in the above figures as the result. A margin varying according to the grading of the spinning mills up to a cent per pound in these numbers in the cost of manufacture from cotton to the shipping of the yarn (the difference would, of course, have to come from interest and dividend) is, therefore, not to be excluded from the general estimate of cost.

The cost of manufacturing a pound of print cloth in America, as taken from the working account of one of the largest mills in Lowell, is as follows:

B. Cost of spinning in America.

	Cents.	
Carding		.855
Spinning		1.137
Weaving		3.028
Dressing		.469
Other labor, finishing, etc		.2
Extra board		.039
Labor		5.728
Cloth, etc., in finishing department	.171	
Water power and taxes	.568	
Supplies	.899	
Repairs	.901	
Expenses	.284	
		2.823
Total cost		8.551

While the items for labor are separated here in spinning, weaving, and finishing and can be easily compared with the cost in England, all the other items of expense as tabulated above can not be obtained for each branch of manufacture for reasons stated above.

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We can approximate the expense by taking the English additional cost for weaving print cloth as a guide. This, I was told by an expert in the business, is covered by 5/8 to 3/4 of a penny on a pound of print cloth, or about 1 3/8 cents.

To satisfy myself, however, of the correctness of these statistics on weaving, I went to Burnley, a town in N. E. Lancashire, where most of this class of print cloth is manufactured, to obtain the exact figures. The actual outlay for labor in a pound of print cloth outside of the weaver's wage, taken from the mill account, is 0.7925*d.*, or 1.585 cents. The total net cost of a piece of print cloth of 125 yards, weighing 14 pounds, labor and expense, supplies, interest, charges, etc., but exclusive of net profit and spinner's wage, is about 1*s.* 9*d.* or 1.50*d.*=3.00 cents per pound; deducting from this 0.7925*d.*=1.585 cents, we have 0.7075=1.415 cents. Others state this item as 2*s.* per piece with about the same labor cost, which would then make the pound cost 1.71*d.* or 3.42 cents; deducting from this 0.7925*d.* or 1.585 cents, leaves 0.9175*d.* or 1.835 cents.

As this English expense, however, includes interest charge, which is not included in the item of American cost, we may take this 1 3/8 cents to somewhat more than cover the items in weaving covered in the American account mentioned above. On closer scrutiny it may still be found necessary to take a larger part of "supplies" at least over to the weaving department. Sizing takes a very much greater share than all other supplies given in the weaving department in America. It is therefore safe to take the general average as 1 3/8 against 2.823, the American total, except in supplies, where the cost in the spinning supplies is certainly not greater per pound than in England. Deducting this 1 3/8 cents from 2.823 leaves 1.448 or 1 1/2 cents as the additional charge to be allotted to the spinning expenses. We have, therefore, labor in a pound of yarn for—

Print cloth in America	1.992
Other expense	1.448
Total	3.440
Less supplies chargeable to weaving as being in excess according to above statement...	.255
	3.205

Comparing this with the English expense as classified above we arrive at the following:

PER POUND OF YARN.

	Lancashire.	Lowell.
Total wages	1.708	1.995
Power and taxes	.418	.298
Supplies	.240	.240
Repairs and depreciation	.6	.475
Interest on loan, etc	.3	.6
Carriage	.18	
Expense, etc		.150
Addition		.090
	3.506	3.205

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I have to repeat that though we have nearly "covered" the same items, still the modifications in each item are sufficient that the result may be somewhat altered when comparison can be made item for item in each branch. For this inquiry, it will be only possible to cover absolutely both costs in America and England by taking the totals in the summing up of this report. For instance, while wages are somewhat higher in America in number 32 to 33 than in Lancashire in number 37½, it is not due to direct spinners' wages, which are about the same, but to a higher general cost as held against this most profitable working mill, and would not at all, it seems, be above, and even somewhat below, the cost of English mills not so advantageously situated or organized. Interest of loans is not taken in the American mill account, as the mill is organized on stock capital, nor is expense for carriage included. Taking these items from the English cost to bring it up to American cost, we might perhaps say that less than one-half cent per pound would cover the difference in favor of this special Lancashire spinning-mill on yarn turned out and bring it 0.3 cents below the cost of such mills, which have for a number of years not been able to show any dividends or even interest on loans in Lancashire.

IN SWITZERLAND.

In Switzerland the cost of spinning cotton into yarn was given to me as 70 centimes per kilo, or $6\frac{3}{32}$ cents per pound. This, however, is the complete cost, and includes all labor, supplies, and expense, depreciation, charge, etc., interest and profit for thirty-eight to forty years. In other words it is the price which the maker of the cloth pays for his yarn in excess of the price of cotton. The margin of difference seems to be a high one, and, giving due allowance for the difference in numbers, still leaves a margin of about 2 cents to be accounted for. This includes the profit of the spinner, which is not contained in the account given for America, and which even in England, as stated before, leaves a margin from a half a cent to a cent. On the other hand the Swiss mills are usually small ones, working with machinery and general organization not at all up to the most recent developments and inventions.

A manufacturer in Switzerland, with whom I exchanged opinions on cotton manufacturing in the different countries and to whom I mentioned the prices at which spinning and weaving mills are capitalized in England, told me that they would cost far more in Switzerland to erect. To my statement that "a good fire-proof mill can be built and filled with mules at £1 or $4.86 to £1 2s or $5.34 per spindle, and a good shed can be built and filled with calico looms at £12 or $58.32 per loom," as I had it from competent authority, he states that it would cost there 60 francs or $12 per spindle and 1,000 francs or $200 per loom. However, in the nature of an apology for this high cost, he explained that they could not make use of the English built machinery, spindles and looms, as they were too poor and did not last, and that theirs, made in Mulhouse especially, lasted twice as long as the English. Now this seems precisely what is not wanted in progressive manu-

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facturing. When invention chases invention, and the advances made in one decade show improvements and changes which fifty years ago were not seen in a long lifetime, it seems that the long life and utilization of machinery is but another term for procrastinations and conservation of antiquated methods. How effectively these changes are introduced was shown to me by my informant at Salford. The mill which I visited there was a comparatively new mill, so to speak, with every conceivable labor-saving appliance, walking-cranes for loading and unloading, railways through the mill for the carding of goods, and all of modern appearance. Still he told me that in their other spinning-mill of latest construction the earnings of the operatives were from 1 to 2 shillings higher per week than in the older one, as the newer machinery enabled them to turn out more work at a smaller cost to the owners.

On the whole it will be seen, even making allowance for the fact that some mills in Switzerland may work under more disadvantageous circumstances, that, view as we may, in these counts at least they have no great advantage in their cheaper labor, but, on the contrary, work at a higher cost. Under all conditions, taking the most profitably worked mill in England as a basis for comparison with our mills in America, it will be seen that in the cost of spinning medium numbers our cost is almost on a par, and that we pay no more for our labor than is paid in cotton spinning in England and considerably less than is paid on the Continent, if we take the wages by the pound or product and not by the day wages earned by the spinner in the different countries. In fact the latter is an illusory measure of cost, and the former the only true one.

In spinning wages stand as follows, measured by the day:

	Switzerland.	England.	America.
Men, mule spinners	$0.57 to $0.66	$1.23 to $1.68	$1.50
Mule spinner's helper		0.64 to 0.72	
Mule spinner's boy			0.60
Women, ring spinners	0.47 to 0.57	0.56	0.84
Women, carding	0.38		
Girls	0.48		
Women, drawing and slubbing	0.38		
Women and girls		0.64 to 68	

In throstle spinning in England one girl attends four sides of 144 spindles, or 576 spindles; in America, as many as eight sides. The average, as given to me, in the print-mill of Lowell is 960 spindles per spinner (girls and women). In other words, 50 per cent. of higher earnings are balanced by 66⅔ per cent. more work turned out or spindles attended to. The speed in England is about 5,300 in throstle spinning and about 8,000 in mule spinning. While the cost of spinning in England and America is about the same, the wages are also nearly the same. When higher in America, the difference is balanced by higher exertion and output, while in Switzerland earnings are considerably lower, with a disproportionately greater cost of production.

To get the exact subdivided items of the Swiss spinning-mill would require closer study and inquiry than it was possible for me to give to the

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subject at the time of my visit, having been engrossed then with other duties of inquiry. As I wanted to obtain the cost of a completed pound of print cloth of the number named above, I did not purpose to go and examine into details of the cost of yarn spinning, but only to get the cost of the material which the weaving mills employ in making print cloth. They buy the yarn and pay at the rate of 2 francs 20 centimes per kilogram. This is at the basis of 1 franc 30 centimes of cotton delivered at the spinning-mill in Switzerland and 15 per cent. waste, equal to 20 centimes, leaving 70 centimes per kilogram the cost to the weaver for turning cotton into the yarn used by him.

II. WEAVING.

Weaving is paid per cut at the rate of 20 cents for 50 yards in Lowell. The rate at which weaving is paid for this particular print cloth in Lancashire, at the present time, is 12¾*d.* or 25½ cents per cut of 50 yards, being 25 per cent. higher than the rate paid in Lowell; or, to put it in another form, 40 cents in Lowell and 51 cents in Lancashire per 100 yards. The direct cost for weaving of the same length — 7 yards to the pound — in America is therefore 2.80, and in Lancashire, 3.57. The labor-cost in a mill at Lowell, per pound, is given as follows:

	Cents.
Direct weaver's wages	2.80
Other labor expense	.428
Dressing	.469
Extra board	.039
	3.736

Here, now, when making comparison with English cost, one of the modifications enters which I referred to above and makes the seemingly easy case rather complicated again. The numbers of yarn being finer in England than in America, give necessarily a larger number of yards to the pound of equally wide woven goods, when the count of threads to the inch is the same. The American goods are 7 yards to the pound, and the English goods, which I weighed for my own assurance in the mill, of the same width as American, measure 9 yards to the pound. We have therefore to reduce the pound to the American basis for comparing the cost of an equal number of yards. The items are, per pound, in Burnley:

LABOR COST.	Pence.		Cents.	Less ⅞ths to bring to 7 yards American. Cents.
Sizing	.308	or	.616	.479
Beaming	.092	"	.184	.143
Twisting	.08	"	.16	.124
Cobwinding	.3125	"	.625	.486
	0.7925		1.585	1.232

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Compared with England, for the same length, we have in labor-cost:

	Lowell. Cents.	Burnley. Cents.
Weavers' wages	2.8	3.57
Dressing or sizing	.469	.479
Reaming, twisting, winding, etc	.428	.753
Extra board	.039	.....
	3.736	4.802

The sizing or dressing costs about the same as in America. The extra board paid in American mills, as stated in the American account, is paid by the mill to the boarding-house keepers for all female employés boarding in the mills boarding-houses, and, of course, is not an expense in the cost of manufacture in Lancashire. It must, however, be taken as an additional cost of manufacture in America, and in a comparison of the cost is to be counted. We have, therefore, a total labor-cost in weaving 1 pound of print cloth in England as 4.802 and in America as 3.736, or 1.066 cents higher labor-cost in England than in America for an equal amount of work turned out in number of yards.

The general expense for supplies, repairs, power, and other expense is taken as 1⅜ cents in England, and in America, as said before, where the items can not be well separated, an approximate estimate of the cost left over from the amount allotted to spinning expense makes the general expense for supplies, etc., 1.335 cents in weaving. It appears, therefore, that in the general expense of manufacture in the weaving department the difference is not very great between America and England, and that the only difference existing consists in the lower rate of wages paid to American operatives compared with England. The English total cost and the American total cost of the weaving department is therefore as follows:

	English.	American.
Labor	4.802	3.736
Supplies and expense	1.38	1.335
	6.182	5.071

The Swiss cost of weaving from the yarn to the cloth, inclusive of all expense for materials, general expense and interest, is 80 centimes per kilogram, which is equal to 6.96 cents per pound. To sum up, then, the American and English cost of manufacture stands:

	American.	England.
Total labor-cost of spinning	1.992	1.708
Total labor-cost of weaving	3.736	4.802
Total cost of supplies and other mill charges, approximately*	2.823	3.175
	8.551	9.685

The labor cost and the cost of general supply and expense in Switzerland can not well be separated from the total cost of spinning, and even the cost

*Less interest charges contained in English account.

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of weaving has to be taken as a whole; but, adding these two items, the total spinning cost of 6.06 cents and the weaving cost of 6.95 cents, 13.01 cents, constitutes the whole cost, inclusive of interest, general expense, etc., of manufacturing print cloths in Switzerland of the quality and width described.

We have, therefore, 8.551, 9.685, and 10.12 (reducing the cost of Switzerland to the length standard of America) as the total cost of manufacturing in America, England, and Switzerland.

The selling price of the Swiss cloth at the time of my inquiry, about a year ago, was 3 francs per kilogram, equal to 26 cents per pound. The price of cotton, inclusive of waste, was just 13 cents. The price of the English cloth, taken per pound, is 23.35 cents.

The relative working capacity of and wages paid to weavers in America are, according to information from one of the leading mills, an average of six and three-quarters looms to the weaver. I have recently been informed that in England four looms is the highest rate of single weavers making this class of cloth. Some run six looms, but they invariably have a helper to assist them, who is paid by the weaver out of his wages. These are men; the four-loom weavers are mostly women. For single weavers no more than four looms are taken. The general average, taking all weavers, poor and good, is given by competent judges to be not more than three and a half looms. The average earnings per loom are given as 5*s*. 3*d*., or say $1.25 per loom, or averaging earnings for finished weavers of $5 per week. A guinea per week, as I was told at Burnley, is a fair average for good single weavers. At the rate at which weaving is paid this would indicate for four looms a weekly output of 980 yards; but if we take the three and a half loom average, or only 857 yards.

I have statements from two mills, both in Lowell, one giving the earnings per loom at 81 cents. This would indicate a weekly earning of $5.08, and at the rate of 40 cents per 100 yards be an output of 1,270 yards per week. At another mill, running a fairly equal percentage of looms per weaver, it was stated at the time of my visit that 4½ cuts of 50 yards was the output of one loom per week, which, taking an average of six looms only, would be a little over 27 cuts of 50 yards, or 1,350 yards, and at the rate of 40 cents per 100 yards would be $5.40 as the weekly earnings.

It will therefore be seen that the earnings of English weavers at the present time in these cotton mills are nearly the same as the American. The labor-cost, however, by the piece, cut, or yard is considerably above. The American earnings can only be brought up to the English earnings by a considerably greater output by the American operatives. The piece rates for weaving are not absolutely uniform, and some differences exist. Only a few days ago a convention of cotton weavers was held at Blackburn for the purpose of taking action towards obtaining a uniform rate of wages in cotton weaving in Lancashire. The rates quoted above are given by a manufacturer of machinery and looms in Burnley—the chief seat of manufacture of print cloths—who runs a weaving mill himself, and by his acquaintance and inti-

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mate knowledge of this special trade is capable of giving the most accurate information on the subject. From managers of Burnley mills I obtained further and more detailed statements, enabling me to corroborate previously received information and bring the whole to as nearly a reliable basis as can be received. The figures are taken from actual mill accounts, and leave neither for America or England room for doubt as to their general correctness.

THE SELLING PRICE.

The agent of an American print-works mill, with whom I exchanged views on the subject at the time of my late visit, told me that he knew that he did the spinning cheaper than they did it in England, but he had not known that the weaving was done at a lower price in America than in England; that if this were so they would be able to export print cloth to England, which they were, however, not able to do. They had tried it in times of depression, when prices were low, but could not sell the goods even under a loss.

The matter seems, however, to be of easy explanation. The selling price at the present time of a piece of 28-inch print cloth at the Burnley mill is 13*s.* 7½*d.*, or $3.27. The manufacturing cost from the yarn up, in labor, supplies, expense, etc., is 4*s.* 4½*d.*, or $1.05, and of 14 pounds of yarn at 8*d.* per pound, 9*s.* 4*d.*, or $2.24, and a total cost of $3.29. This shows an apparent loss of 2 cents per piece. But, as the mill manager told me, there is a small profit made over and above the interest and dividends on the shares, which can only come from the smaller yarn weight, than that indicated by the cloth weight, and due to the sizing given to the yarn before weaving it, or from cheaper yarn prices, which frequently occur, according to the ruling price of cotton.

The price per yard is therefore 2.616 cents in England, while print cloth of this width and count sells now at about 3⅜ or 3½ cents in America, and I do not recollect that it ever sold at less than 3 cents. Now, this difference is not due to the labor cost, which is cheaper than in England. No labor in this particular cotton-weaving industry is so poorly paid as the American, if taken by the piece; it is not due to other higher expense, which is pretty nearly the same as in England, although the higher cost of plant and interest charges may bring incidentals a shade higher; it is only to a small extent due to higher profit rates, or rather dividends, which at this present time are very satisfactory indeed. In October, 1886, when cotton figured at 10.695 cents, inclusive of waste (it is somewhat higher now), the total cost, exclusive of dividends, per pound, was 19.246 cents, or 2.766 cents per yard.

The English cloth, however, with cotton at 11.804 (inclusive of waste), or about 10 per cent. higher, is sold at 2.616, inclusive of interest, dividends, and a small profit; consequently 0.150 cents less than the American net cost.

The cause must, therefore, be sought in a different direction, and it is near at hand, for we have indicated it above. The yarn used in England is

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finer, consequently a greater length of yarn to the pound, which, if of the same number of picks per inch, must give a greater number of yards to the pound than in America where an average of at least 5 numbers coarser is used. * True, this makes the American goods stouter—more cottony—while the English prints have a finer yarn but contain more dressing. Whatever may be said in favor or against one or the other merit or demerit, the result is certainly a considerable cheapening in the price of cloth.

Accepting the yarn weight to correspond with the cloth weight, for briefness' sake, then 125 yards of cloth in Great Britain will take 14 pounds of yarn, and in America 18 pounds of yarn—a clear gain of 4 pounds to the English manufacturer; a fact which, without any further elaboration, will fully explain why the finer yarn goods of England are cheaper, despite the higher labor cost, than the American goods. It is a saving in the cotton alone of 4 pounds in 125 yards, or, at 11½ cents, 46 cents, and in the yarn of 64 cents. Taking the saving of cotton alone at the rate of 7 yards to the pound, there is a difference of ¾ cents on the basis of calculation of American print cloth, equal to 38 per cent. of the total manufacturing cost, inclusive of labor, and equal to 56 per cent. of the total labor-cost in spinning and weaving.

To be exact, therefore, adding two-sevenths to the weight of cotton in each yard of English print cloth, to bring it up to the American weight, would give to the present price of 2.616 cents additional cost of cotton, at two-sevenths per pound of cloth, at 11½ cents, 3.285 cents per yard, at 7 yards to the pound, .470 cents, bringing the cloth up to 3.086 cents per yard, or 21.602 cents per pound. The American cost is 19.246 cents, or 2⅓ cents cheaper per pound, when put side by side, on the intrinsic merits of weight. Allowing for the difference in the price of cotton and interest charge, contained in the English cost, we have a balance left in favor of America sufficient to cover the higher labor cost of England in making print cloth.—TUNSTALL, *May 8, 1888.*

J. SCHOENHOF,
Consul.

STRIKES IN HOLLAND.

In a portion of my annual report for 1887, submitted under date of January 9, 1888, relating to the general condition of this country, I alluded to the state of its manufacturing industries, and amongst my remarks upon this point are the following:

In the rates of wages for all classes of labor the change has not been material. They have remained about what they were the year before, which means that in many cases, if not as a rule, they have been and are too low for further reduction.

No strikes have occurred in any quarter or in any industry—

I deem it to be sufficiently interesting now to report that but very few days elapsed after writing the above when a strike broke out in two of the

*The clothmakers usually take two to three numbers finer yarn, than the numbers by which the cloth is known and mentioned above, as I learned at Burnley. The difference in the spinning expense is trifling, the gain in length considerable.

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cotton-weaving mills at Almelo, a small manufacturing town within this consular district, which in certain respects, or as to some of its characterizing features, stands quite unparalleled in the history of strikes which have hitherto taken place in Holland, and this more particularly on account of the great pertinacity with which the proprietors of the mills endeavored to maintain their position in cutting down or reducing the wages of the weavers, who as persistently refused to accede to the proposed reduction, causing the strike to last about fourteen weeks.

The establishments this refers to are those of the firms Scholton Bros. & Co. and H. & B. Scholten, who ordinarily give employment to from 700 to 800 hands.

In January last, the weavers to the number of about 650 were earning per week, as is trustworthily represented, at the rate of wages as then paid them by the piece, when working about sixty-six hours weekly, from 5 florins, or $2, to 7 florins, or $2.80, the adult workmen, and boys and girls about 2 florins and 50 cents or $1.

It was on these wages that a reduction of from 5 to 7½ per cent. was proposed by the mill owners, and which caused such obstinate resistance and the strike on the part of the workmen.

To report in detail all that took place, or undertake to describe even but cursorily the more prominent occurrences which the so long lasting strike led to, would, in order to do it anyways accurately and justly, demand previous investigation on the subject of a character entirely beyond my opportunities.

The unfortunate situation of the unemployed workmen soon attracted much general attention throughout the country, and efforts were not wanting on the part of disinterested parties to bring about some satisfactory arrangement between the employers and the unemployed workmen.

Long-continued failure in accomplishing that object caused a great deal of deprivation and suffering among the strikers and their families, which was aggravated and the more keen in consequence of the exceptional severity of the past winter.

However, their condition became endurable, as considerable aid reached them in various forms and from different quarters.

The strike did not pass over without some irregularities or violations of the peace, and more serious excesses were prevented by stationing for a time a small military force in the town.

The result of the strike, reached but few days ago, amounts to this: That the workmen (weavers) finally submitted to a reduction, on the average, of about 2 per cent. from their old wages, and all are now at work again.

As to the probable effects of the late strike, I quote from a letter I have just received from a prominent firm, owners of a cotton-mill in the same district. It says:

> We are afraid that the result of the strike has embittered for a considerable length of time the relations between employers and employés, and for that reason we foresee that it will have a bad effect upon the industry of Almelo, and perhaps to some extent upon that of our whole district.

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Strikes, of which but few particulars have so far been published, are now also reported from the turf-pits districts situated in the provinces of Drenthe and Overijssel.

In these cases, as I understand, the workmen turf-cutters, some hundreds of them, stopped work upon being refused payment of a certain increase of former wages.

I noticed several accounts in the newspapers of disorderly conduct on the part of the strikers in that section, and of the necessity for the requisition of some military force to put down or prevent further disturbances.

In some cases the land or pit owners have agreed, as is reported, to meet the demand of the laborers, many of whom resumed work.—AMSTERDAM, *April 24, 1888.*

D. ECKSTEIN,
Consul.

A KIANGSU GUILD AT TIEN-TSIN.

In my despatch on Chinese guilds, published in CONSULAR REPORT No. 83 (September, 1887), the compiler has interpolated a mark of interrogation, as follows: "In most cities (?) each province has its own guild." The implication is that the text was not understood. To thoroughly explain the statement I enclose herewith a programme for the establishment of a Kiangsu guild at Tien-Tsin.

Kiangsu, it will be noted, is one of the southern provinces, while Tien-Tsin is a northern city; yet a guild for Kiangsu people is to be established at Tien-Tsin. I repeat that guilds for the accommodation of the people of each province are established in the principal cities.—PEKING, *March 20, 1888.*

CHARLES DEBY.

PROPOSED ESTABLISHMENT OF A KIANGSU GUILD IN TIEN-TSIN.

Since the inauguration of commerce between China and western countries, Tien-Tsin has become the trade center of northern China, which gives it an importance beyond that of any other city in the northern provinces. Indeed its importance as an emporium of trade and foreign intercourse is so great that His Excellency the Viceroy of Chihli finds it necessary to locate his headquarters here. Among the official and mercantile classes who are congregated at this flourishing port, men from the province of Kiangsu greatly predominate over those of any other province. Of the millions of piculs of rice which are sent up to Tien-Tsin every year, over one-half come from the provinces of Kiangsu and Chekiang alone. The shipment of this enormous quantity of rice consequently brings a host of Kiangsu vessels here, together with their crews.

Aside from the Kiangsu officials and merchants who are regularly stationed here, a considerable number of others are constantly either going to or from Pekin, and while en route they stop here for a longer or shorter period.

Under these circumstances it is desirable and necessary that a Kiangsu guild be established where fellow provincials who may have occasion to stop here en route to or from our capital

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may find suitable and convenient quarters for lodgment; and, secondly, such a guild, by affording a place where Kiangsu provincials may assemble to deliberate over matters of business or of public importance, will serve to bind together and unify their interests.

A third use of the guild would be that on all occasions of importance, public receptions, and entertainments can be given when natives of Kiangsu may meet together for social convivialities. Moved by considerations such as the above, the prominent members of the Kiangsu community in Tientsin have decided that a guild is indispensable, and they have accordingly taken the needful steps looking toward the accomplishment of the project. A committee has been appointed, composed of the Kiangsu officials in the province of Chihli, and they have drawn up a set of regulations for the purpose of raising the required funds to carry out the proposed undertaking.

In the meantime, pending the collection of the funds required, it has been decided to borrow the money and proceed with the building at once, the loan to be repaid from time to time as subscriptions are received. The following are the regulations enacted, assessing prescribed contributions upon Kiangsu merchants and officials:

1.—For all civil officials of the rank of Taotai and above, and for all military officers above the rank of colonel, whether expectant or actually in office, subscriptions shall be levied in accordance with their means.

2.—Officials of the rank of prefect, sub-prefect, deputy sub-prefect, magistrate, and all others of that class, shall each be required to contribute a sum of 100 taels annually, beginning with this year, and continuing for five years.

3.—Officials below the rank of prefect and magistrate, although expectant, yet if they have salaried employment, shall contribute an amount equal to their one month's salary, this to continue for five years.

4. Secretaries, clerks, and all of that class employed in yamêns who derive considerable perquisites shall contribute annually 2 per cent. of their income, collectible for five years.

5. Beginning with this year and continuing until the debt contracted in the building of the guild is cancelled, officials who are natives of Kiangsu, and who may have occasion to pass through Tientsin en route to or from Peking shall be required to contribute toward the general fund, each according to his ability. And when the guild is finished, it will be ready to accommodate those who have helped towards its establishment.

6. Subscription books will be sent to the Kiangsu officials of other provinces in order that they may contribute toward the guild fund, thus to hasten the final completion of the project.

7. The establishment of the guild being for the benefit of the Kiangsu merchants as well as the officials, the former should contribute each according to his means, their contributions being collectible twice yearly until the end of five years.

8. Steamers conveying rice from Kiangsu, for every 10 piculs of rice transported shall pay an assessed contribution of 2 candareens, until the expiry of three years; and rice junks shall pay 6 candareens for every 10 piculs of rice transported, this contribution being assessable for five years.

The above regulations are enacted with reference only to the establishment of the guild. When it is completed, further rules will be devised for its permanent organization and management, and these rules will be printed and circulated among those interested. All subscriptions are to be sent in to the head telegraph office in Tientsin, and will be received by the firm of Yü T'ung Hêng.

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SAN DOMINGO ENTERPRISES.

The Government has signed a contract with French bankers for a loan of 21,000,000 francs at 6 per cent. per annum, receiving for the same 15,000,000 francs, as follows: Five million with which to pay the Hartmont repudiated loan, 5,000,000 in munitions and vessels of war, and 5,000,000 toward cancelling the present indebtedness of the Government. I have to report two important American enterprises already contracted for. The one to build a bridge across the Ozama river by Mr. Nathaniel McKay, he receiving the usufruct of the bridge for thirty years, paying to the city council an average of 12½ per cent. of the net proceeds, after which date the bridge to become the property of the city council. I think this a very important and lucrative concession for Mr. McKay. Another enterprise of importance is a concession granted to certain Hartford capitalists through Mr. H. M. Linnell, of Hartford, Conn., and Mr. William St. John, of New York, for lighting the city with the system of electric lighting.—SAN DOMINGO, *April 8, 1888.*

H. C. C. ASTWOOD,
Consul.

DUTCH STEAMSHIP LINE TO CARACAO.

A new line of steamships, the Royal Dutch and West India Steamships, receiving subsidies, will now compete for the trade our ships have built up, and having no dockage to pay, it puts the American steamships in a very unfavorable position.—CURAÇAO, *April 27, 1888.*

L. B. SMITH.
Consul.

THE BEET-SUGAR INDUSTRY IN GERMANY.

Many things which were formerly counted articles of luxury have now entered into general and daily use, and are reckoned as indispensable to life and comfort. This is due to the great change which has come over our habits and customs. As the relations between the different countries and people of the world have become more intimate, and their means of communication speedier, competition in international trade and commerce has grown sharper and more active. A wider theoretical knowledge and a profounder technical skill have come to the assistance of labor. The products of labor have been thereby cheapened, the cost of living consequently reduced, while hand in hand with the increased consumption there has been an unprecedented increase of production. This is particularly the case with sugar.

At the beginning of the last century the supply of sugar in Europe scarcely equaled half a million meter centner.* In 1730 the import of this article to Europe was estimated at a little over a million meter centner. To-day the annual consumption of raw sugar in England alone amounts approximately to eleven million meter centners. According to authentic sources, moreover, in the year 1867, the total annual production of colonial sugar (cane sugar) amounted to 14 million meter centners, while at present it reaches far above thirty million. Of beet sugar, the annual production of

*A meter centner is equal to 110 pounds.

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which was at that time only three and one-half million meter centners, twenty-five million meter centners are now annually consumed. In the saccharine constituents of the native German sugar beet, cane sugar, formerly exclusively used, has found a mighty competitor.

It is from the sugar cane, *saccharum officinarum*, that the major portion of the world's supply of sugar is obtained. The American continent, with its adjacent islands, constitutes undoubtedly the most productive source, while the Island of Cuba is the largest sugar-growing country in the world, having produced in 1849 about 220,000 meter tons; in 1859, 415,000 meter tons; in 1870, 660,000 meter tons; in 1881, 521,000 meter tons, and in 1882, 606,000 meter tons. On the South American continent Brazil ranks first as a sugar-producing country, and, after Cuba, furnishes the largest supply of sugar cane. In the harvest of 1860–'61 Brazil exported rather more than 650,000 meter centners, and in 1876–'77 as much as 1,800,000 meter centners. Since 1879, notwithstanding various circumstances, which tended to paralyze the trade, the export of sugar from Brazil has averaged more than 2,000,000 meter centners. In the extraordinary good harvest year of 1880–'81 it rose to over two and one-half million meter centners, and in 1881–'82, in which year the sugar-cane harvest was generally unfavorable, equaled, quite unexpectedly, 2,200,000 meter centners.

The following comparative estimate shows the present average production of colonial sugar in all sugar-growing countries. Owing to unavoidable circumstances the figures are in some instances only approximate:

	Meter centners.
Cuba (production)	6,000,000
Brazil (export)	2,500,000
British West Indies (export)	1,800,000
United States of America (production)	1,500,000
French West Indies (production)	950,000
British Guiana (export)	850,000
Peru (production)	630,000
Venezuela (production)	420,000
Argentine Republic (production)	230,000
Dutch Guiana (export)	140,000
San Domingo (production)	63,000
Mexico (export)	40,000
San Salvador (export)	25,000
British Honduras (export)	25,000
Nicaragua (export)	5,000
French Guiana (production)	2,000
Total in America	15,180,000
Java (production)	2,500,000
China (production)	2,500,000
Philippine Islands (export)	2,000,000
British East Indies (export)	330,000
Siam (export)	18,000
Total in Asia	7,348,000

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Hawaii (export)	300,000
Queensland (production)	210,000
New South Wales (production)	90,000
Fiji Islands (production)	10,000
Total in Australia and Polynesia	610,000
Mauritius (production)	1,350,000
Réunion (production)	320,000
Egypt (production)	430,000
Natal (export)	120,000
Mayotte (production)	40,000
Nossi Bé (production)	20,000
Total in Africa	2,280,000
Spain	380,000
Total in Europe	380,000

The total production of colonial sugar in the world amounts, therefore, to 25,689,000 meter centners. To this amount, however, must be added, first, the cane sugar produced in countries other than those above mentioned, and secondly, the home consumption of cane sugar in places from which the export has alone been stated. The total amount of sugar produced from sugar cane may then be reckoned at considerably more than twenty-five million meter centners; in fact, a total of twenty-six to twenty-seven millions could not be regarded as an exaggerated estimate.

Great, however, as the importance and growth of the cane-sugar industry as shown by the above figures most undoubtedly are, the vastness of the increase in the consumption of sugar by all nations during the past twenty years is first seen when a comparison is made between the development of beet sugar and that of colonial sugar as articles of commerce.

Professor Achard, a pupil of the highly meritorious discoverer of the new method of beet-sugar manufacture, Professor Markgraf, of the Berlin University, whose death occurred in 1782, started on his farm "Cunern," in Lower Silesia, at the turn of the past and present century, with the aid of and under the protection of Frederic William III., the then reigning king of Prussia, the first beet-sugar factory in Europe. This new industry, however, owing to various causes, did not begin to flourish until much later. France, in fact, which had in 1837 no less than 585 beet-sugar factories, producing 50,000 meter centners of beet sugar annually, was the first country in which the industry in question can be said to have struck firm root. Germany followed slowly in the wake of her neighbor. In 1837 she had only 122 beet-sugar factories in operation with an annual production of only 14,400 meter centners of sugar from 254,000 meter centners of beets.

New, and almost exclusively European, the beet-sugar industry supplied the world's market in 1882–'3 with 21,455,340 meter centners of sugar; in 1883–'4 with 22,400,000 meter centners, and in 1886–'7 with approximately 23,672,000 meter centners, or scarcely 14 per cent. less than the old colonial sugar industry, which is distributed over the tropic and temperate zones of the whole earth.

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At the present date the beet-sugar production amounts in meter tons, at 1,000 kilograms, to—

Countries.	1876–'77.	1881–'82.	1882–'83.	1883–'84.	1884–'85.	1885–'86.	1886–'87.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
In Germany	289,422	599,722	848,124	925,000	1,123,030	808,100	985,600
In Austria-Hungary	341,553	411,015	472,002	435,000	450,000	475,000	460,600
In France	243,182	393,269	423,194	450,000	475,000	460,000	465,000
In Russia and Poland	250,000	308,779	284,491	300,000	320,000	315,000	320,000
In Belgium	45,628	73,136	82,723	90,000	92,000	90,000	93,000
In Netherlands	16,078	20,000	25,000	30,000	35,000	32,000	35,000
In other countries	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total production	1,195,563	1,815,921	2,145,534	2,240,000	2,505,030	2,190,100	2,369,200

These figures, however, only show the extensive development of the beet-sugar industry, and not the more important development, which must certainly be considered as the true cause of the enormous increase in the consumption of beet-sugar.

This intensive development is shown in the following table, extracted from the official statistics of the German Empire on beet-sugar manufacture:

Statistics of the average production of sugar and molasses during the years 1836 to 1887.

During the year.	Number of factories.	Annual average amount of beets consumed.		Production of raw sugar (juice reduced to raw sugar) in 000 m. c.	Production of molasses in 000 m. c.	Production of raw sugar, per factory, in 000 m. c.	Beets consumed, per m. c. raw sugar, in meter centner.	Average production of—	
		In all factories generally, in 000 m. c.	Per-factory in 000 m. c.					Raw sugar per cent.	Molasses per cent.
1836–'37	122	353.5	2.1	14.1	10.9	115.5	18.00	5.50	4.30
1840–'45	116	2,067.7	17.8	129.9	70.4	1,119.5	15.91	6.30	3.38
1845–'55	221	9,238.9	41.8	701.8	233.7	3,125.5	13.66	7.57	2.54
1860–'65	253	17,931.8	70.9	1,424.4	402.0	5,129.5	12.50	8.00	2.23
1870–'75	322	29,530.6	91.7	2,512.4	840.8	7,802.5	11.75	8.53	2.96
1875–'76	332	41,612.8	125.3	3,580.5	1,389.5	10,314.5	11.62	8.60	3.22
1878–'79	324	46,287.4	141.8	4,261.5	1,336.5	13,152.5	10.86	9.21	2.80
1880–'81	333	63.222.0	184.3	5,559.1	1,649.8	16,694.0	11.37	8.80	2.69
1881–'82	343	62,719.5	182.9	5,997.2	1,508.1	17,484.6	10.46	9.56	2.40
1882–'83	358	87,471.5	244.3	8,319.9	1,963.1	23,326.2	10.47	9.51	2.24
1883–'84	376	89,181.3	237.2	9,401.0	2,079.7	25,002.9	10.54	10.54	2.33
1884–'85	408	104,026.8	254.9	11,230.3	2,596.9	27,532.6	10.79	10.79	2.50
1885–'86	379	70,703.1	177.2	8,081.4	1,801.7	19,587.6	11.03	11.43	2.55
1886–'87	401	83,066.7	207.1	9,856.2	2,158.8	24,579.2	11.86	11.87	2.60

According to these figures the quantity of beets requisite to produce one meter centner of raw sugar has declined in the German Customs Union since 1836 by 40 per cent.; in the case of the less valuable molasses by 45 per cent., while the gain in raw sugar has risen by 75 per cent. The efficiency of the individual factories in producing raw sugar has increased by 20.202 per cent., and the total production by 59.200 per cent. The superior yield

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of saccharine matter from the beets is attributed only in a small degree to the larger average intrinsic quantity of sugar gradually produced by rational culture in the beets consumed. It is far more the result of the scientific and technical improvements which have been introduced in the internal economy of the sugar factories.

The enterprise which the Germans have shown in their application of science and new technical processes in the manufacture of beet sugar is shown by the following facts and statistics:

In the German Empire were operated in the years—

1871–'72, in a total of 311 factories, 52 with diffusion, 259 with presses.
1875–'76, in a total of 332 factories, 157 with diffusion, 175 with presses.
1882–'83, in a total of 358 factories, 343 with diffusion, 15 with presses.
1886–'87, in a total of 401 factories, 397 with diffusion, 4 with presses.

In 1886–'87 401 sugar factories were in operation in Germany, while a large additional number were either planned or in course of construction. No less than 147,782 hectares of land were appropriated to the cultivation of beets (1 hectare equals 2.471 acres), the average crop being 300 meter centners to the hectare. The production of raw sugar amounted to 9,856,278 meter centners, that of molasses to 2,158,872 meter centners, or 12,015,150 meter centners of salable produce.

Germany exported in 1886–'87, raw sugar, 5,136,039 meter centners, valued at 188,234,829 marks; refined sugar, 1,303,789 meter centners, valued at 101,043,649 marks; sirup and molasses, 243,508 meter centners, valued at 2,725,138 marks; total beet-sugar produce export, 6,685,336 meter centners, valued at 292,003,616 marks. The value of the export in 1882 was 156,770,000 marks, and in 1881 151,898,000 marks, so that from 1881 to 1882 an increase of 4,897,000 marks took place, and from 1881 to 1887 an increase of 140,105616 marks. The principal portion of the beet sugar manufactured in Germany is exported to England. At the same time it is probable that a portion of the English import stated as of German origin may have come from Germany only in transit. Nevertheless the German sugar industry most undoubtedly dominates the English market. In fact Germany, with her present annual production of 9,856,200 meter centners of raw sugar, is without doubt the chief sugar-producing country in the world.

During the past few years great efforts have been made to develop the beet-sugar industry in the Uuited States. The experiments, however, which have been made at a vast sacrifice of energy and capital, have entirely failed. This deplorable experience, so dearly purchased, is partly due to the insufficient supply of beets, inferior apparatus, and mismanagement.

The following tables, A, B, C, and D, compiled from the official statistics of the German Empire for the beet-sugar industry, give a clear and very comprehensive idea of its vast extent and profitableness.—BARMEN, *April 27, 1888.*

JOSEPH FALKENBACH,
Consul.

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THE RESULTS OF THE BEET-SUGAR PRODUCTION IN GERMANY DURING THE FISCAL YEARS 1871–'72 TO 1886–'87.

TABLE A.—*Number, arrangements, and days' work of the sugar factories in the German Customs Union, extraction and manufacturing of raw material.*

Fiscal years.	Number of factories.	Run with steam engines.		Factories extracting the juice.			Amount of sugar-beets consumed.			In proportion to the total consumption of beets the percentage of our purchased crop beets amounted to—		Beets of own crop were raised on hectare.	Beets raised per hectare.	Number of days in which beets were consumed, days' work of twelve hours.	Beets consumed in twelve working hours per day.
		Number.	Total horse-power.	With diffusion.	With presses.	With other operations.	Own produce.	Purchased.	Total consumption.						
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
							100 kilos.	*100 kilos.*	*100 kilos.*	*Per ct.*	*Per ct.*		*100 ks.*		*100 ks.*
1871–'72	311	1,921	18,162	52	216	43	15,043,510	7,465,672	22,509,182	66.8	33.2	73.690	204	64,451	349
1872–'73	324	2,076	19,923	63	220	41	21,012,014	19,802,494	31,815,508	66.0	34.0	82,590	254	87,677	363
1873–'74	337	2,203	21,954	80	214	43	24,209,086	11,078,553	35,287,637	68.6	31.4	88,877	272	91,254	387
1874–'75	333	2,233	22,712	113	181	39	19,080,947	8,486,504	27,567,451	69.2	30.8	92,655	206	70,020	394
1875–'76	332	2,300	23,325	157	137	38	28,363,068	13,249,774	41,612,842	68.2	31.8	96,724	293	91,675	454
1876–'77	328	2,370	24,923	197	98	33	24,901,537	10,598,829	35,500,366	70.1	29.9	98,725	252	70,608	503
1877–'78	329	2,413	25,788	224	81	24	28,727,752	12,181,928	40,909,680	70.2	29.8	104,723	274	75,320	543
1878–'79	324	2,493	26,882	258	50	16	31,140,298	15,147,179	46,287,477	67.3	32.7	107,679	289	75,895	610
1879–'80	328	2,627	29,586	292	28	9	28,505,861	19,546,754	48,052,615	59.3	40.7	113,003	252	70,909	678
1880–'81	333	2,812	32,269	309	20	4	38,716,787	24,505,243	63,222,030	61.2	38.8	118,431	327	82,052	771
1881–'82	343	3,046	35,476	324	16	3	34,317,535	28,401,944	62,719,479	54.7	45.3	121,256	283	76,325	822
1882–'83	358	3,365	40,515	343	12	3	44,486,318	42,985,219	87,471,537	50.9	49.1	129,262	344	94,816	923
1883–'84	376	3,715	46,158	368	6	2	42,050,639	47,130,664	89,181,303	47.2	52.8	140,843	299	89,956	991
1884–'85	408	4,196	56,119	402	4	2	49,362,459	54,664,424	104,026,883	47.5	52.5	150,077	329	97,065	1,072
1885–'86	399	4,188	57,194	395	3	1	41,990,474	28,712,694	70,703,168	59.4	40.6	138,869	302	65,642	1,077
1886–'87	401	4,276	58,770	397	3	1	44,360,835	38,705,877	83,066,712	53.4	46.6	147,782	300	72,593	1,144
Average of 16 years	348	2,890	33,735	248	81	19	32,266,883	23,353,984	55,620,867	58.0	42.0	112,828	286	79,766	697

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TABLE B.—*Business results of the sugar factories in the German Customs Union.*

Fiscal years.	Taxed sugar-beets (Table A, column 10) produced.				Out of 100 kilograms taxed sugar-beets were produced—				Out of 100 kilograms of juice were produced.—		To manufacture 100 kilograms raw sugar there were beets consumed —
	Juice.	Out of juice (column 2).			Juice.	Raw sugar.	Molasses.	Total salable produce (col. 7 & 8).	Raw sugar.	Molasses.	
		Raw sugar.	Molasses.	Total salable produce. (Column 3 and 4.)							
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
	100 kilos.	*100 kilos.*	*100 kilos.*	*100 kilos.*	*Kilos.*	*Kilos.*	*Kilos.*	*Kilos.*	*Kilos.*	*Kilos.*	*100 kilo.*
1871–'72	2,629,931	1,864,419	638,917	2,503,336	11.68	8.28	2.84	11.12	70.89	24.29	12.87
1872–'73	3,716,170	2,625,511	915,887	3,541,398	11.68	8.25	2.88	11.13	70.65	24.65	12.11
1873–'74	4,121,142	2,910,407	1,058,183	3,968,590	11.68	8.25	3.00	11.25	70.62	25.68	12.12
1874–'75	3,680,442	2,564,124	976,028	3,540,152	13.35	9.30	3.54	12.84	69.67	26.52	10.75
1875–'76	5,028,183	3,580,482	1,339,524	4,920,006	12.08	8.60	3.22	11.82	71.21	26.64	11.62
1876–'77	4,055,036	2,894,227	1,111,011	4,005,238	11.42	8.15	3.13	11.28	71.37	27.40	12.27
1877–'78	5,155,951	3,780,091	1,228,128	5,008,219	12.60	9.24	3.00	12.24	73.32	23.82	10.82
1878–'79	5,761,803	4,261,551	1,336,515	5,598,066	12.45	9.21	2.89	12.10	73.96	23.20	10.86
1879–'80	5,544,094	4,094,152	1,313,709	5,407,861	11.54	8.52	2.73	11.25	73.85	23.70	11.74
1880–'81	7,393,360	5,559,151	1,649,842	7,208,993	11.69	8.79	2.61	11.40	75.19	22.32	11.37
1881–'82	7,740,044	5,997,222	1,508,129	7,505,351	12.34	9.56	2.40	11.96	77.48	19.48	10.46
1882–'83	10,935,556	8,319,953	1,963,047	10,283,000	12.50	9.51	2.24	11.75	76.08	17.95	10.51
1883–'84	12,168,794	9,401,093	2,079,781	11,480,874	13.65	10.54	2.33	12.87	77.25	17.09	9.49
1884–'85	14,486,187	11,230,303	2,596,997	13,827,300	13.93	10.79	2.50	13.29	77.52	17.93	9.26
1885–'86	10,257,772	8,081,049	1,801,775	9,882,824	14.51	11.43	2.55	13.98	78.78	17.56	8.75
1886–'87	12,459,832	9,856,278	2,158,872	12,015,150	15.00	11.87	2.60	14.47	79.10	17.33	8.43
Average of sixteen years	7,195,894	5,438,751	1,479,771	6,918,522	12.94	9.78	2.66	12.44	75.58	20.56	10.23

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TABLE C.— *Imports and exports of sugar in the German Customs Union.*

Fiscal years.	Imports.				Exports.				
	Refined and raw sugar, Dutch standard, No. 19 and upwards.	Raw sugar below No. 19.	Sirup and dutiable molasses.	Molasses for distilleries.	Raw sugar, etc. (against drawback.)	Candy sugar (against drawback).	Other hard sugar, etc., (against drawback).	Sugar without drawback.	Molasses and sirup.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	100 kilos.	*100 kilos.*	*100 kilos.*	*100 kilos.*	*100 kilos.*	*100 kilos.*	*100 kilos.*	*100 kilos*	*100 kilos.*
1871–'72	127,305	315,832	73,298	81,341	56,665	41,763	16,328	19,394	8,563
1872–'73	124,886	97,562	69,323	23,716	81,777	51,331	28,472	8,043	35,559
1873–'74	161,483	84,148	61,021	50,422	118,092	41,120	26,310	21,182	79,363
1874–'75	141,010	89,133	56,587	50,335	28,838	39,452	15,359	16,531	79,829
1875–'76	145,273	24,526	48,397	4,748	458,942	47,125	25,329	19,588	84,588
1876–'77	77,097	10,172	53,189	28,600	462,189	73,935	43,423	9,857	122,624
1877–'78	49,153	11,674	41,028	7,054	712,010	140,013	83,416	6,764	148,744
1878–'79	39,012	15,304	38,329	31,827	1,034,718	193,561	113,966	2,243	174,507
1879–'80	29,831	16,764	28,996	72,369	951,616	252,364	97,052	2,073	171,576
1880–'81	22,654	12,652	33,220	48,510	2,214,420	353,787	206,814	1,056	160,782
1881–'82	22,016	15,049	33,139	4,588	2,539,310	399,160	144,130	615	211,183
1882–'83	21,038	23,705	35,369	3,611	3,907,027	493,811	242,181	646	141,473
1883–'84	15,577	18,763	32,216	1,695	4,911,761	642,469	298,679	597	255,381
1884–'85	12,645	20,668	33,372	2,816	5,537,931	760,154	318,852	403	650,618
1885–'86	12,300	26,203	28,942	.....	4,040,715	660,196	205,689	365	551,206
1886–'87	14,618	15,675	27,166	1	4,896,801	1,303,789	238,828	414	245,094
Average in sixteen years	63,494	49,864	43,350	25,727	1,997,051	343,377	131,552	6,861	195,094

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TABLE D.—*Sugar consumption and revenue from sugar duties in the German Customs Union.*

Fiscal years.	Production of raw sugar.	Imports of sugar, reduced to raw sugar.	Production and imports together.	Exports of sugar, reduced to raw sugar.	Consumption of sugar computed to raw sugar.			Internal revenue.					
					In the whole. (Column 4 and 5.)	Per head of the population.		Taxes on beet sugar.	Duties of entry.	Total revenue.	Drawbacks on exports.	Net revenue.	Per head of the population.
1.	2.	3.	4.	5.	6.	7.		8.	9.	10.	11.	12.	13.
	100 kilos.	*100 kilos.*	*100 kilos.*	*100 kilos.*	*100 kilos.*	*Kilos.*		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Mks.*
1871–'72	1,864,419	496,332	2,360,751	142,757	2,217,994	5.5		36,014,691	12,498,225	48,512,916	3,875,916	44,637,000	1.11
1872–'73	2,625,511	270,852	2,896,363	179,382	2,716,981	6.6		50,904,813	7,127,469	58,032,282	3,201,150	54,831,132	1.33
1873–'74	2,910,407	289,530	3,199,937	216,550	2,983,387	7.2		56,460,222	7,778,976	64,239,198	3,595,569	60,643,629	1.46
1874–'75	2,564,124	276,907	2,841,031	108,134	2,732,897	6.5	6.5	44,107,920	7,217,593	51,325,513	1,641,786	49,683,727	1.18
1875–'76	3,580,482	212,532	3,793,014	561,209	3,231,805	7.6		66,580,546	5,672,131	72,252,677	8,888,608	63,364,069	1.49
1876–'77	2,894,227	125,060	3,019,287	603,538	2,415,749	5.6		56,800,570	3,353,926	60,154,496	11,389,541	48,764,955	1.14
1877–'78	3,780,091	88,830	3,868,921	967,785	2,901,136	6.7		65,455,491	2,369,082	67,824,573	17,855,173	49,969,400	1.15
1878–'79	4,261,551	79,710	4,341,261	1,380,768	2,960,493	6.7		74,059,961	2,111,772	76,171,733	25,359,970	50,811,763	1.16
1879–'80	4,094,152	65,842	4,159,994	1,344,857	2,815,137	6.3	6.6	76,875,459	1,729,536	78,604,995	24,141,395	54,463,600	1.23
1880–'81	5,559,151	56,073	5,615,224	2,839,039	2,776,185	6.8		101,163,969	1,480,967	102,644,936	56,547,988	46,096,948	1.12
1881–'82	5,997,222	57,330	6,054,552	3,144,103	2,910,449	6.4		100,351,163	1,518,056	101,869,219	43,412,561	56,456,658	1.29
1882–'83	8,319,953	66,012	8,385,965	4,725,514	3,660,451	8.1		139,954,448	1,730,108	141,684,556	74,397,666	67,286,890	1.49
1883–'84	9,401,093	53,761	9,454,854	5,958,144	3,496,710	7.7		142,690,084	1,400,481	144,090,565	96,302,249	47,788,316	1.05
1884–'85	11,230,303	53,035	11,283,338	6,737,274	4,546,064	9.9	7.9	166,443,012	1,378,602	167,821,614	128,452,707	39,368,907	.86
1885–'86	8,081,049	55,745	8,136,794	5,003,215	3,133,579	6.8		113,125,068	1,434,687	114,559,755	90,067,544	24,492,211	.53
1886–'87	9,856,278	46,779	9,903,057	6,611,280	3,291,777	7.0		131,213,410	1,231,770	142,445,180	114,181,546	28,263,634	.60
Average in sixteen years....	5,438,751	143,395	5,582,146	2,532,722	3,049,424	7.0		89,512,552	3,752,086	93,264,638	43,956,961	49,307,677	1.13

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CAUSES OF AGRICULTURAL DEPRESSION IN FRANCE.

The question of the hour in France, the all-important subject which most engages the attention of thoughtful men, is the extreme depression which has fallen upon agricultural interests in this country and the steadily increasing embarrassments which now weigh upon proprietors and cultivators of the soil. It is only within a few months past, since the statistics of last year's vintage and harvests were published, that the real nature of the situation has been generally understood and openly discussed. It is the nature of agricultural misfortunes to operate more or less silently. If a great financial house becomes bankrupt, if a foreign war seems imminent, or an army loses a battle, the effect upon markets and values is immediate and often exaggerated. But a short crop, the touch of blight or epidemic upon the fields or the flocks of the farmer, anything in short which discourages rural investments, may even increase the value of the corporate and public securities with which capitalists and financial writers are chiefly concerned. The values of food products are no longer governed by local harvests, and since breadstuffs and meats have grown steadily cheaper during the past few years, it is but natural that the industrial classes, in cities and villages, should have supposed, as long as their employment and wages continued, that all was going well.

From this delusion there has come during the past few months a general and rude awakening. The vintage of 1887 was not only the smallest that had been gathered for many years, but the prices at which the new wine was sold were from 30 to 50 per cent. below those of the preceding year. In the values of all domestic animals there has been a decline estimated at from 45 to 50 per cent. during the past six years. In presence of a constantly increasing product of foreign wheat and a declining market, the increased duties on cereals imported into France have simpy augmented the revenues of the Government, without more than slightly enhancing the local prices of breadstuffs. Wheat growing in France no longer yields a profit to the farmer, whose situation has become so embarrassing that some of the more radical French economists now declare that the only possible means of salvation for the agriculture of Central Europe will be for France, Germany, Austria, and Italy to sink all political antipathies and jealousies and form an international customs union to exclude all food products from Russia, India, Australia, and America.

In a report from this consulate, dated the 28th December last, some account was given of the steadily decreasing acreage and annual product of the vineyards which constitute the principal, and by far the most valuable feature of French agriculture. It is proposed to now examine briefly the effect of this decline upon the general prosperity of the people. In 1877 there was a full vintage, and the agricultural classes in France were prosperous and content.

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The following table will show the acreage of productive vineyards from year to year since that period, the varying vintage, and the progress of wine exportation and import:

Years.	Acreage in vines.	Vintage.	Wine.	
			Imports.	Exports.
	Acres.	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*
1877	5,798,522	56,405,000	707,000	3,102,000
1878	5,673,688	48,729,000	1,603,000	2,795,000
1879	5,539,004	25,770,000	2,938,000	3,047,000
1880	8,447,526	29,667,000	7,219,000	2,488,000
1881	5,436,317	34,139,000	7,839,000	2,572,000
1882	5,276,733	30,886,000	7,537,000	2,618,000
1883	5,179,329	36,029,000	8,980,000	3,093,000
1884	5,043,001	34,781,000	8,115,000	2,470,000
1885	4,919,017	28,536,000	8,182,000	2,580,000
1886	4,841,214	25,063,000	11,011,000	2,704,000
Average for ten years	5,315,435	35,000,060	6,413,000	2,747,000
1887	4,804,262	24,333,329	10,582,000	2,187,000
Deficit	511,167	10,666,671	*4,169,000	†560,000

*Increase. †Decrease.

Commenting upon these sadly eloquent statistics, the Journal de l'Agriculture enters upon a calculation to find what has been the actual loss which France has sustained through this decline in her wine product. Assuming 1877 as a normal year, estimating the average market value of each year's vintage at 20 francs per hectoliter and funding at 5 per cent. interest the cumulating deficits of each subsequent year, the writer constructs the following exhibit:

Years.			Deficit compared with 1877.
	Hectoliters.	*Francs.*	*Francs.*
1877	56,405,000	1,128,100,000	.....
1878	48,729,000	974,580,000	153,520,000
1879	25,770,000	515,400,000	612,700,000
1880	29,667,000	593,340,000	534,760,000
1881	34,139,000	582,780,000	445,320,000
1882	30,886,000	617,720,000	510,380,000
1883	36,029,000	720,580,000	407,520,000
1884	34,781,000	695,620,000	432,480,000
1885	28,536,000	570,720,000	557,380,000
1886	25,063,000	501,260,000	526,740,000
1887	24,333,329	486,666,580	641,433,420
Deficit	.....	.....	4,922,233,420
Cumulative interest at 5 per cent. on each year's deficit	.....	.....	257,742,812
Total loss	.....	.....	5,179,976,232

There is thus demonstrated, according to this calculation, a net loss of more than $1,000,000,000, which has fallen upon the agriculturists of France

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in ten years through the diminished product of the vine alone. Nor is this all. In 1877 the exports of wine were more than four times greater than the imports, while in 1887 the imports were five times greater than the exports, and the adverse balance of value goes to augment the steadily increasing drain upon the wealth of the country.

Figures so vast as the foregoing are not easily comprehensible to the average intelligence, and in order to put the case into a concrete and more practicable form, a recent writer (Mr. Cazeaux) cites as an illustration a farmer owning fifty acres of good vine land, which produced a fair average quality of ordinary wine, such as sold ten years ago for 20 francs per hectoliter at the close of the autumn vintage. In 1887 this man raised 564 hectoliters of wine, which he sold for 11,280 francs. All expenses of cultivation, taxes, utensils, and maintenance of family are carefully put down, and amounted for that year to 9,900 francs, leaving a net profit of 1,380 francs, which was invested as savings at 5 per cent. interest. From that date the wine crop of this farmer for each subsequent year is made to fluctuate in exact accordance with the gross vintage of the entire country, so that in 1878 his vines yielded only 487 hectoliters and 257 in 1879. But in this latter year the short crop caused an advance in the price of new wines, and our peasant's 257 hectoliters were sold for 25 francs each. He also reduced by one-quarter his consumption of meat and made several other economies, for all of which due credit is given. Nevertheless his expenses for 1879 exceeded his receipts by 1,800 francs, so that the savings of 1877 were absorbed, and he was obliged to borrow 420 francs to balance the accounts of that disastrous year.

In this way the fortunes of this honest cultivator, who stands as the type of an immense class in France, are followed in minute detail through the ten years which closed with the season of 1887. By reason of the cheapening of clothing, meat, and bread, he had been able to make some economies; but these fell so short of balancing the deficit in his crop, and the increased cost of vine culture with sulphide of carbon and other remedies for phylloxera, oïdium, mildew, etc., that at the end of the decade he finds himself *in extremis*, his implements and buildings worn out and suffering for repairs which he can not afford to make, and his land burdened with mortgages, the interest of which he finds it difficult to pay. For the large class of small farmers who cultivate leased land the case is still worse, for in addition to all the foregoing difficulties they have the annual rent of their land to pay. If, instead of being a wine-grower, our farmer lives in northern or central France and devotes himself to wheat growing his case is scarcely better. The wheat that he sold for 28 to 30 francs per 100 kilos ten years ago now commands but 17 to 20 francs. Every bushel he harvests has been grown at a loss. The market is dominated by imported wheat from Russia, India, and America, which sells for 16.50 to 19 francs per cental, prices with which he can never successfully compete. If he is a grower of cattle, hogs, or sheep the case is even worse, and for a similar reason. Imported wool, beef,

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pork, frozen mutton, and hides are sold at prices which leave him hopelessly out of competition. The great government contracts for cured meats for the French army and navy are filled in Chicago and Buenos Ayres. In lumber and many other coarse materials the case is equally forbidding. Staves from Trieste, doors, window-frames, and dressed flooring from Sweden and Canada, are offered at any French seaport for less than the native lumber in the rough cost here ten years ago.

China, Japan, and cheap quick transportation have ruined French silk culture. Aniline dyes have destroyed the culture of madder, which only a few years ago made the fortune of a large district in the valley of the Rhone.

There is, in fact, not a single agricultural or natural product of France which is not now produced in profusion by new countries at a comparatively nominal cost, and the same is true, with but trifling variations, of Germany and Italy. In Italy there is not sufficient capital to employ the legions of willing laborers, and this redundant population is pouring in steadily increasing increasing streams to North and South America. In Germany emigration has reached proportions which are thought likely, unless checked, to compromise the vitality and industrial capacity of the race.

Such is the situation, such the problem, which modern civilization has entailed upon the governments of central and western Europe. France, with her many technical industries, her frugal and industries people, and her vast accumulated wealth, has hitherto been able to meet this steady decline in her agriculture bravely and hopefully, but the strain is now beginning to be seriously felt. The population of many rural departments is steadily diminishing as the discouraged peasants abandon the hard struggle and seek employment in the cities and larger towns, where the labor market is already overstocked, and the competition with cheap foreign labor becomes more desperate day by day.

There are in Marseilles alone more than 50,000 Italians, the majority of whom are ordinary laborers and who enact here a rôle similar to that of the Chinese in the Pacific coast States a few years ago.

II.

Such in brief is the present agricultural and industrial situation which confronts the people of France. It is recognized that unless some general and effective remedy can be devised there will be in store still darker days, not only for this country but for the whole of central Europe. The recourse of protective duties has been tried; but, on the whole, with only negative results, and public opinion is dividing men into two great camps—the extreme protectionists and the advocates of free trade. Without venturing any judgment or opinion upon this complicated question, it is fairly within the province of this report to state substantially the attitudes and arguments of the opposing parties.

The extreme protectionists follow mainly the lines indicated by Dr. Alexander Peez, the Austrian economist, in his notable pamphlet "Amerikanische Konkurrenz," published in 1881, viz: "That improvements in agriculture and transportation have revolutionized international commercial

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relations and placed the old and worn countries of central Europe at such a disadvantage as to not only justify but compel a resort to high import tariffs or absolute exclusion of food products from the United States and other new and highly productive countries." Advocates of this faith point to the phenomenal prosperity of the United States under a protective system, and to the rapid development of the beet-sugar industry and certain branches of manufacture in Germany under the high import duties and export bounties which have prevailed in that country during the past ten years. They insist that protective duties on cereals and meats have failed to be effective in France only because they have not been high enough, and urge that they be made practically prohibitive.

On the other hand, the commercial and operative classes, the merchants and vessel owners of Marseilles, Havre, and Bordeaux, the railway managers and the great army of wage-earners cry out against protective duties on food as barbarous, and demand that the present duties on cereals, meats, coffee, sugar, and all the raw materials of manufacture shall be abolished.

Perhaps the case of the free-trade party has been nowhere more cleverly and forcibly argued than in the publications of the French Chamber of Commerce, at London, an association which includes the more prominent French business men who are established at the British capital. In the periodical bulletins of this society, which are circulated largely throughout France, are given reports and statistics comparing the industrial progress of the two countries, the relative cost of food and clothing, the speed and cost of freight transport by rail, and many other things, quite to the disadvantage of France. Bread costs 30 per cent. and meat 20 per cent. more at Paris than at London; petroleum, 19 centimes per litre against 50 and 60 in France, and so on through a long list of the necessities of daily living. The society insists that the commerce and manufactures of France are being ruined by protective duties and demands.

The abolition, total, immediate and without conditions, of all monopolies and protective duties whatsoever which affect agriculture, manufactures, and navigation.

Between these two extremes, the statesmen of not only France, but of her continental neighbors as well, are seeking to discover paths which, without unduly sacrificing agriculture on the one hand or commerce and manufactures on the other, and the national revenues above all, shall lead to prosperity and relief. The more deeply this problem is studied the more formidable its difficulties appear. — MARSEILLES, *May 2, 1888.*

FRANK H. MASON,
Consul.

CONDITION OF THE WORKING CLASSES IN GERMANY.

The social and moral condition of the working classes, as a rule, can not be said to have undergone any special dangers in the large manufacturing cities of Germany during the last year. At the opening of the last session of the Reichstag it was announced in the speech from the throne that a gov-

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ernment bill would shortly be introduced to provide for state pensions to work people incapacitated by age or infirmity to support themselves. The effect of this measure, if accepted by the confederate German governments, would be of an epoch-making character. It would do much to soothe the feelings of a class rendered bitter and discontented by neglect, and would go farther to stop the dissemination and reduce the popularity of social democratic views than any amount of repressive legislation. The law, however, has not yet been passed, so that the general situation is still much as it was.

Among the most prominent changes to which I may point is the increase in the number of juvenile workers. The employment of children in some large cities does not, as a rule, offer any occasion for special criticism. The little ones are mostly engaged in such branches of industry as the manufacture of fancy paper, drapery, artificial flowers, etc., by which their strength is not overtaxed, but on the contrary the work is both light and healthy. The increase in the employment of children in factories is, however, a much more serious matter. It frequently happens that boys of twelve to fourteen years of age, and even younger, when school obligations have not ceased, are employed on steam brick-yards in company with men, more particularly for the purpose of turning the bricks laid out to-day. In such cases no practical supervision is possible on the part of the factory owner, and the moral danger which the children incur is considerable and past redemption.

It is more especially in the stone, clay, and mineral industries that the number of juvenile workers of the male sex has increased. Only in the glass industry has the reverse been the case, the reason being that the modern improved methods of manufacture adopted in the glass factories render such labor superfluous.

It is to the credit of factory owners that the regulations and laws affecting juvenile labor are only violated in very few cases. This may be due to the circumstance that every factory in which workers are employed is subject to an official inspection once in very month. The actual number of instances in which these regulations were reported as having been violated was, for instance, in the city of Berlin, 44 during the year 1886.

A considerable increase in the number of female workers in the large cities has taken place, and these constituted in the city of Berlin in 1886 not less than 25 per cent. of the working population. The moral condition of these women seems to be undergoing a gradual improvement. At any rate, it must be admitted that there is no great element of danger to their moral and physical development in the very nature of the work they perform. In this respect Berlin is naturally favored. The greater portion of industry in all large cities in Germany consists of home industry. Whatever evil influences the working girls may be exposed to, they are not specifically those of factory life. The lowness of wages, the catastrophes of trade, over-competition and over-production, which are common eventualities all the world over, entail in Germany, as well as everywhere else, their inevitable and deeply demoralizing consequences.

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Statistics prove that those branches of industry which are most dangerous to the health of female workers, and exert more especially a deleterious influence on the corporeal development of working girls, are mining, ore smelting, and peat digging. Not one of those branches of industry is represented in the city of Berlin, for example. If, therefore, the moral condition of the female workers in that city is on the average a deplorable one, its cause must be sought for in the influences and associations of the home life, for it is at home that the work is mainly done and the worker lives.

The question naturally arises, to what extent do the wealthier and leisured classes most nearly interested in the well-being of the working men and working women — I refer, of course, to the manufacturers and their wives — seek by the expenditure of their superfluous wealth, or, better still, by their personal sympathy, to raise the moral condition of those upon whom their bread depends? It must be replied that more might be done in this direction than actually is done. Unhappily, the wives of the manufacturers and wholesale merchants all the world over do not seem to interest themselves very intimately in the weal and woe of their husbands' employés. There is, in fact, a deplorable lack of sympathy and confidence on both sides. To speak of Berlin in particular, the number of benevolent institutions there, compared with other German cities, is strangely small in proportion to the size of the place, and has shown no increase during the past three years, although the working population has been rising rapidly. The attitude of the clergy is neither very emphatic nor particularly serviceable, for it can not be said that they exercise any great influence upon the life or thought of the majority of the well-to-do in the German capital. The churches in Berlin are few and far between, and by no means largely or regularly attended. The opportunities, therefore, of urging the claims of the industrious poor upon the attention of their more fortunate brethren are not many, and as the priesthood is divided into more than one hostile camp, these opportunities are too often sacrificed to an aimless agitation for this party or the other, to a petty propaganda of Christian-socialistic or anti-semitic doctrines. Under these circumstances it is not surprising that the proletariat looks to itself to help itself, and that the majority of the working classes are the supporters of the social democratic party.

The savings-bank and trade-union systems show a very extended development. They belong, however, to a special category altogether, and spring from the will of the people themselves. They may be classed with beneficial, but not with benevolent, institutions.

Berlin industry is, as I have already stated, mostly carried on in the homes of the workers themselves. It is therefore only by bringing the most civilizing of home influences to bear upon these homes that the moral and social condition of the Berlin working classes can be ameliorated. — BARMEN, *April 20, 1888.*

JOSEPH FALKENBACH,
Consul.

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THE TRADE OF INDIA.

The following is the official summary statement of the foreign trade of India for the eleven months ending February, in the fiscal years 1886–'87 and 1887–'88:

Articles.	Imports, eleven months ending February—		Exports, eleven months ending February—	
	1887–'88.	1886–'87.	1887–'88.	1886–'87.
Animals (living)	£185,098	£186,414	£92,689	£61,230
Articles of food and drink	5,099,424	4,666,072	15,847,468	17,302,021
Hardware and cutlery (including plated ware)	745,864	578,178	4,708	3,810
Metals	3,540,764	3,087,127	31,228	27,520
Machinery and mill work	1,197,408	900,178	66	211
Railway plant and rolling stock	1,684,759	961,632		
Chemicals, drugs, medicines, etc	690,495	645,532	10,433,388	10,892,335
Oils	1,003,225	986,761	313,102	305,193
Raw materials and unmanufactured articles	2,686,152	2,111,641	23,838,634	21,981,819
Yarns and textile fabrics	21,105,013	22,042,713	5,116,485	4,001,022
Apparel	873,295	751,204	63,381	52,960
Other manufactured articles	3,359,488	3,017,640	2,467,740	2,305,908
Total	42,170,985	39,875,092	58,208,889	56,934,029

THE PROVINCE OF KIANG-SU, CHINA.

The province of Kiang-Su lies between 35° 10′ and 31° 20′ north latitude and 5′ to 5° east longitude from Peking. The area is about 43,000 square miles, and the population, which can not be accurately stated, is generally estimated to be from thirty-five to forty millions.

Kiang-Su is divided into twelve departments and subdivided into sixty-seven districts. It contains eight cities of the first class, nine of the second, and sixty-two of the third. The best known of these, commercially, is Shanghai. Chinkiang, Nanking, and Soochow are also noted for their size and commercial importance.

In the southern part of the province there are a few mountains, but otherwise the soil is level and fertile. The people are industrious and easily governed, and the history of China records the names of many eminent men whose birthplace was Kiang-Su.

A complete net-work of canals and navigable streams exist throughout the province. In such a system of intercommunication we find one of the causes that has long resulted in making Kiang-Su one of the most populous and prosperous provinces in the Empire. It is said that you can go to every man's door in a boat.

In describing the resources of this province and its trade one must depend very largely upon observation, for statistics regarding population or production, if kept at all, can not be relied on, and therefore there is no way of obtaining them other than by general information. Every three years a census is supposed to be taken, and as a matter of fact the local officers do make a show of taking it. A certificate is posted on every door on which should be written the names of the inmates, their ages and occupation. A report is

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transmitted through the provincial authorities to the capital. The system is not honestly carried out, the tendency being to exaggeration, and the door certificates are often filled in according to the census taker's own opinion of what it should be without the labor of verifying it. We have to be content with what we can learn from observation, and as the water-ways afford a means of traversing the province in all directions a pretty fair idea may be obtained in this way. Wherever one goes in Kiang-Su he sees evidences of a vast population and extensive trade. The cities have a busy look; the canals and rivers are crowded with boats, and in the fields, at all seasons of the year, some sort of work is going on.

The Kiang-Su farmer does not turn up his soil deeper than 8 or 10 inches, but he labors with this thin covering of earth perseveringly, and in the course of twelve months, in some instances, five different crops are obtained. It is not usual for one farmer to cultivate more than 2 or 3 acres.

LAND TENURE.

A successful farmer may acquire more land than this, but he prefers to rent the surplus and with his family make the most of a small piece that he can easily overlook.

There are no fences in this part of China. Boundary stones mark the different holdings, yet disputes over boundary "lines" are no less frequent than in other parts of the world. The system of dividing the province into departments and districts and redivisions of districts extends until the Tu is reached, which includes but a small section under the superintendence of an officer called a ti-pau. He keeps a record of the land transfers and reports them to the magistrate of a district who grants title deeds. He holds his office for a year, it being the custom to rotate the office among the responsible men of the section. When a piece of land is sold a conveyance is drawn up and signed by the principals and also by several friends or brokers who lend their services to the negotiation, which is never conducted between buyer and seller alone. These "middle-men," as they are called, receive a small commission, and the ti-pau exacts about 5 per cent. of the purchase-money for his fees; but the parties often conspire to defraud him by naming a smaller sum in the conveyance than is actually stipulated.

While theoretically all the land of China is the Emperor's, and his subjects may do no more than rent it, yet they buy and sell land freely. A father may leave a quantity of land which is to be divided between two sons, and to avoid the expense of securing separate deeds they cut the original deed diagonally into two equal parts, the half deed being recognized as a good title to one-half the original lot.

About the year 1865 it became necessary to issue new deeds for all the land in this part of China. The Tai-ping rebellion, a fierce war, extending from 1850 to 1865, of which we in America knew but little, had so desolated the country, and so many families had fled or been killed, that the Government required the survivors to prove their claims, and that for which no claim was made reverted to the "Lord of the Soil."

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THE TAI-PING REBELLION.

During the years 1860–'64 the operations of the imperial forces against the rebels were carried on principally in this province, south of the Yangtse River, and on the border of the adjoining provinces of Che-kiang and An-hui. Although twenty years have passed since this rebellion was suppressed the scars of the terrible conflict still are to be seen throughout the province. Many towns and villages that were destroyed have never been rebuilt, and even portions of the great cities of Nanking, Hangchow, and Soochow are still in ruins. Some of the present streets of those cities are built over the débris of buildings then demolished.

Recovery from the effects of that war is gradually going on. Looms in the silk districts, while not yet approaching the number worked twenty-five years ago, are becoming more numerous every year, and increasing prosperity is demanding that the ruins in the larger cities, long since grown over with rank vegetation, be removed and their streets rebuilt.

The chief of the enormous faction who sought to overthrow the Tartar Government was a remarkable character, and his adherents were fierce, desperate, and, in some instances, able men. At the outset the rebels aimed not only at overthrowing the Government but the establishment of Christianity and the extermination of heathen idolatry and pagan superstition. Their chief, originally of the most humble circumstances, a native of the province of Kwang-tung, having heard something of the principles of Christianity, and becoming much interested, sought out an American missionary at Canton, with whom he pursued a study of Christian doctrines. He returned to his native village and claimed to have held communication with God.

What proved to be one of the greatest of modern wars was the result of a chain of national catastrophies, all tending to weaken the power of the Government and to create discontent among the people. When this rebel chief undertook to conquer China the country was in the poorest possible position to resist his rebellion.

With the coming of foreigners to what had been hitherto a sealed nation, and especially with the entry of military operations (beginning with the British war with China of 1841–'42), the introduction of fire-arms put a new power into the hands of the people. They were quick to observe the effect of organization and resistance and to appreciate the power of gunpowder now within their reach. Impoverished by a series of floods and famines, and smarting under the additional taxation consequent on the indemnity of $21,000,000 demanded by Great Britain on account of the war, discontent spread among the people and made them ripe for rebellion. The rebel chief, Hung-ching-tseh, made a formal declaration of rebellion in 1850, and a year later assumed the title of "Heavenly Prince." In 1853 he established his court at Nanking and continued his operations against the imperialists with some success until 1859. The remaining five years of the war witnessed the introduction of the foreign fighting element. The organization of a force

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of Americans and Europeans in order to protect Shanghai from attack seems to have been the original idea which induced foreigners to enlist in the cause.

Out of this arrangement grew the "ever victorious army," which first, under General Ward, a native of Salem, Mass., and after his death under General Gordon, proved the effectual means of putting down the rebellion. In August, 1860, the rebel forces attacked Shanghai, but were repulsed by the combined French and English forces that manned the walls of the native city. It was at this period that Li Hung-chang, the viceroy of Tien-Tsin, and the leading statesman of China at the present time, laid the foundation of his successful career while filling the post of governor of Kiang-Su.

In the rebel headquarters trouble had arisen, and personal jealousies among the leaders had in a measure demoralized their army. Professing and enforcing a most rigid system of moral law in the earlier years of the rebellion, basing their code and worship on exaggerated interpretations of the Scriptures, they appear to have gone beyond the bounds of reason and ended in corruptions and cruelties that have not been equalled in modern times. Throughout Kiang-Su death and desolation were so widespread that the regained prosperity of to-day seems almost incredible.

We often hear the subject of China's failure to progress in the march of civilization discussed, but when the invasions, rebellions, and calamities in the way of floods and famines that have followed each other for centuries are considered, the fact that the country holds its own is a matter of wonder.

Year after year the Yellow River inundations desolate extensive sections of the country. During the present year the loss of life in Honan consequent upon the overflowing of this river is appalling. Two years ago the province of Kwang-Tung, of which Canton is the capital, was the scene of fearful floods. Famines usually follow floods, extending the time of suffering greatly.

Kiang-Su is fortunately situated. It is well drained, and has no mountain streams which, as in the northern provinces, swell to mighty torrents in a few hours. The climate is well suited to semi-tropical vegetation. In the open ports, where foreigners have created a demand for their own kinds of vegetables, the supply is generally forthcoming, but in a few cases only is the imported seed adapted to native consumption.

PRODUCTS.

The principal productions of Kiang-Su are rice, cotton, and silk. Beyond the records of the goods passing through the customs we have no statistics to inform us as to the annual crops, but some idea may be had of the rice crop by considering that out of the population of Kiang-Su, estimating it at 30,000,000, at least 20,000,000 will consume on an average a catty (1⅓ pounds) of rice per day, say 444,444 bushels, or 162,222,060 bushels per annum. During 1886 there was exported from Shanghai 4,531,051 piculs, valued in Haikwan taels at 8,158,107.

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COTTON.

Notwithstanding the extensive importation of manufactured cottons into China the cultivation of the plant in this province is an important branch of industry. One sees women and children in the fields hoeing and picking it, and from the time it is gathered until it is woven into cloth the various manipulations appear to be monopolized by women.

The Chinese system of planting and cultivating cotton strikes any one accustomed to our methods in the Southern States as extremely crude. The seed is sown broadcast in among small grain crops about the months of March or April, or sown broadcast if planted by itself. When the wheat or oats is cut the small plant can then be seen. In either case, when it gets 6 or 8 inches high, from time to time, as it is growing, they pour or sprinkle over the beds liquid manure. I may remark that all of their crops are planted in beds rounded off from the top to a water furrow on each side. They hoe in among it the best they can, apparently without thinning it out. It is as thick almost as small grain. The stalks rarely attain a height of more than 2½ to 3 feet on land rich enough naturally (and very richly fertilized besides) to produce under our system a heavy bale to the acre. The stalks are spindling and the bolls are so small that it will take from forty to fifty of them to make a pound of seed cotton, while they will not average more than six to the stalk. The cotton is rather dingy in color and of very short staple. They never use a plow in its cultivation, and when preparing the soil turn it up with wooden plows, the pattern of which is as old, I presume, as the days of Confucius. The experiment of using American seed has been tried, I am informed, but without much better results than in the case of their own seed, but the reason of this can be readily accounted for in their system of planting and cultivation. They gin their cotton on a gin worked by a pedal, which, while very crude, yet seems to pound the lint off the seed pretty well. An American hand gin ought to take well, and some of our ingenious mechanics should invent one that would answer the purpose.

The gin above referred to works on the principle of a clothes-wringer, with the exception that the rollers are made to revolve in opposite directions. The cotton is wound through and the seeds squeezed out as they meet the pressure caused by the rollers.

SILK.

The following return of the exportation of silk from Shanghai are for the year ending December 31, 1886:

	Bales.	Piculs (of 133⅓ pounds).
Raw	44,962	37,381.26
Yellow	7,208	8,165.54½
Re-reeled	45	45.42
Reeled from dupions	52	47.51
Raw, wild	8,621	8,625.04
Waste	10,234	34,375.29
Cocoons	1,489	3,419.32

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Of this the United States took as follows:

	Bales.	Piculs (of 133⅓ pounds).
Raw	6,661	6,785.87
Yellow	14	14.54
Re-reeled	45	45.42
Reeled from dupions	nil	.....
Raw, wild	62	61.71
Waste	12	34.79
Cocoons	153	262.09

The silk industry also affords occupation for women, and as their mode of living does not require much time in the preparation of food the work done by them is an important feature in Chinese economy. It perhaps counterbalances the wasteful habits of their opium-smoking husbands and fathers.

The success obtained by the Chinese in the silk industry is due to the careful exactness with which they manipulate the silk-worm. This delicate insect requires the greatest care and skill, and the patient temperament of the Chinese is appropriate to its development. An ancient and distinguished Chinese writer, whose treatise on the production of silk is authoritative, says:

An agreeable place ought to be chosen for the apartment of the silk-worms. It must be on a dry and rising ground and near a rivulet; because it is necessary to wash the eggs often, and running water agrees best with them. Their lodgings ought to be retired from all dunghills, sinks, cattle, and all noise. Disagreeable smells and the least fright make strange impressions on so nice a brood. Even the barking of a dog and the crowing of a cock put them into disorder when nearly hatched. The room must be built square, and may serve for other uses when the silk season is over. Its walls must be very close for the sake of warmth; the door south, at least southeast, but never in the north, with a window on every side to receive and have a free passage for the air, as occasion requires. These windows, which are almost always kept shut, are of white translucent paper, behind which are movable mats placed so as to admit or shut out light as occasion requires.

Superstition enters into the system of raising silk-worms as well as into nearly all the habits of the Chinese. In some localities persons in mourning are not allowed to go near the growing worms until forty-nine days of the period of mourning have elapsed, and those who attend them must abstain from eating certain food. They are careful never to enter the room in which the worms are kept without having sprinkled themselves with water, which is kept for this purpose in a basin at the door. The occupation of rearing silk-worms is considered a most honorable one, and Chinese authors record several instances where Empresses have been engaged in hatching and raising them.

The cultivation of the mulberry also requires great care and skill, and to insure success it is necessary, in the first place, to be able to distinguish between the good and the inferior varieties.

The trees that shoot their fruit before their leaves and the young trees which have a shriveled bark should be rejected, as they produce small and useless leaves. The desirable trees have a whitish bark, few knots, and large

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buds. In describing the methods of the Chinese in cultivating the mulberry I can do no better than quote from a French writer, whose comments are full and in reality are literal translations from Chinese authors:

The best mulberry trees are those that give the least fruit, because the sap is less divided. There is a method to render them barren as to fruit but rich in leaves, and it is by feeding poultry with mulberries, either fresh picked off the tree or dried in the sun, and then taking their dung and dissolving it in water; the mulberry seed is steeped therein, after which they sow it. The young trees that have been too much stripped of their leaves in the first three years suffer for it afterwards, becoming weak and backward. The same happens to those trees whose leaves and leafless branches are not pruned. They are in their prime vigor in the third year, but begin to decline toward the fifth, when the roots gall. The remedy is in the spring to unearth the roots and cut off the most entangled, and then cover them with a proper mold, sprinkling it with water. When the mulberry trees grow old, there is an art to recover them by cutting off the exhausted branches and grafting sound shoots in their stead, by which means a sap glides through the whole body of the tree and enlivens it. This operation should always be made in the beginning of the second month, which answers to our March.

To prevent the trees from languishing you must frequently examine if certain worms have not entered and lodged their seed in them. These worms are killed by pouring a little of the oil of the tong-tree fruit in upon them. Any other strong oil would certainly produce the same effect.

The soil proper for the mulberry trees ought not to be strong nor too hard. Ground newly broke up is very good for the purpose. In the provinces of Chekiang and Kiang-Su, whence the best silk comes, care is taken to mend the soil with the mud of the canals cut through the country, which are cleaned every year. The dung of animals and even of the silk-worms, with ashes, is also proper manure. Small garden seeds sown between these trees are of no damage to them, provided the plow does not touch the roots. But the main and most profitable point is to be very watchful in having the mulberry trees pruned in a right season and by a skillful hand. This makes them earlier and more abounding with leaves, which are thereby better filled and more relished by the silk-worms. The branches about the middle of the tree ought particularly to be lopped away, that the leaves may be picked the more commodiously. A leaf gatherer who places himself always in the center of the tree will with this precaution gather more in one day than another without it could in several days, which is no small saving, besides being a readier way to supply the hungry worms. A mulberry tree well pruned yields as much as two others.

The month of January is the season for pruning the mulberry trees, which is done in the same manner as vines, particularly arbor vines. It is sufficient that the branches which are left have four buds. The overplus ought to be thrown away. Four sorts of branches must be entirely cut off: First, those that hang down toward the root; second, those that shoot inward toward the trunk; third, those that are forky; fourth, those which grow well otherwise but are too clustering and too much garnished. None but the branches that shoot outward from the tree are to be spared. The following spring they will be vigorous and flourishing, and their forward leaves will advance the maturity of the worms and the profit of the silk. About the close of autumn, before the mulberry leaves grow yellow, they ought to be gathered and dried in the sun, then to be pounded small and put into large earthen pots stopped with clay, and so kept in a place free from smoke. In the spring these beaten leaves will be like meal, and proper to be given to the worms after molting.

In the provinces of Chekiang and Kiang-Su, where the best silk is produced, they are very careful to hinder the growth of the mulberry trees and lop them to prevent their exceeding a certain height. When the trees grow old and their leaves are rank care should be taken to renew them. For which end, besides the method of grafting before explained, they procure new plants, either by twisting together quick and sound branches in small casks made of two pieces of large bamboo and filled with good mold, or by binding in the spring the long branches

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left unpruned and sticking their ends in manured soil. In December following, when these branches will have taken root, they are dexterously cut from the body of the trees and transplanted in the proper season. They also sow the mulberry seed, which must be chosen from the best trees and from the fruit that grows about the middle of the branches. This seed ought to be mixed with ashes of the burned branches. Next day the whole is to be stirred in water. When the water is settled the useless seed floats. That which sinks to the bottom ought to be dried in the sun and afterward sowed, mixed with an equal quantity of millet, which assists the mulberry trees, that then love the shade and defends them in growing from the scorching sun. When the millet is ripe they wait for windy weather and then set fire to it. The ensuing spring the mulberry trees shoot with a great deal more strength.

The branches must be pruned away till the plants are grown to a proper height, and then the tops must be cut to make the branches shoot out on the sides. At length the young mulberry trees are transplanted at the distance of 8 or 10 paces in lines 4 paces asunder; but the trees of one line must not be placed directly opposite to those of the next. It is likely they neglect symmetry in this because otherwise the trees might overshade one another.

Among the other products of Kiang-Su are bean-cake, chinaware, hemp, hides, medicines, vegetable oils, paper, rhubarb, tobacco, wax, wheat, and wool.

MANUFACTURES.

In a country where the roads are only irregular foot paths and where railroads have as yet no existence, it is fortunate that the water-ways are so well distributed that an interchange of production can be conveniently carried on. Kiang-Su is a land of boats, and the building of them calls for an immense amount of capital and labor. There seems to be an endless variety of styles of construction, nearly every important city having its own type. In this part of the province the principal manner of propelling boats is by means of the yu-loh, an oar swung from the stern and bent so that the blade can be swung back and forth in the water, on the principle of a screw, by oarsmen who stand erect. It would be difficult to construct a more simple and effective means of propelling a boat. In narrow or crowded streams it is especially convenient.

At Nanking and other ports on the Yang-tse side oars are used, the oarsmen standing and facing the bow of the boat. Boats running on the canals when not favored by suitable winds are usually "tracked" or towed by coolies. A line is attached to the mast-head and harnessed to the trackers, who drag the boat along at the rate of 4 miles an hour.

An ingenious dispatch boat is used in this part of China which is rowed by foot-power. Half reclining in the stern the boatman swings a heavy oar with his feet and keeps headway by means of a paddle which he uses as a rudder. Keeping this paddle in place by putting it under his arm, his hands are free and he is thus enabled to take his food without stopping. A regular line of these boats plying between Shanghai and Soo-Chow make the run of 90 miles in ten hours.

THE MANUFACTURE AND USE OF BEAN-CAKE.*

The process of extracting the oil from beans and of working the refuse into circular cakes, which are used for feeding cattle and also for manure,

*The manufacture and uses of bean-curd (to-fu) are fully described in Consular Reports No. 68, page 647.

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forms one of the important industries of Kiang-Su. In this part of the country a small round bean is used. The machinery employed in the process is rude, yet it answers the purpose well.

At Ming-Hong, a village some 20 miles from Shanghai, there is a bean-cake establishment employing about fifty men. Water buffaloes (bos bubalus) propel the clumsy machinery, about thirty being required to do what one small steam engine could easily perform. Two ponderous stone wheels revolve in opposite directions and at the same time have a second motion, both of them being run around a stone platform, and at regular intervals a quantity of beans fall from a hopper and are ground beneath the heavy wheels. The oil that is expressed finds its way into a reservoir, and what is left is removed and distributed along a circular stone groove about 6 inches deep and 10 yards in diameter. A stone wheel, beveled to an edge, is run around in this groove and forms a most laborious but effectual method of pulverizing the beans. This beveled wheel is dragged around by a blindfolded buffalo. Being blindfolded he avoids dizziness, which constant traveling around a circle would produce, and is less likely to become insubordinate. After the pulverization process is completed the pulp is steamed. The fire used in keeping up steam is made with rice or wheat chaff. Handful by handful this light article is tossed into the fire, by which means great heat is secured. After steaming, the mass is pressed into cakes. The size of the cakes vary from 8 inches to about 30 inches in diameter, resembling the appearance of grindstones. The press consists of a horizontal frame on which a number of the forms are placed. Pressure is obtained by wedges.

Farmers take their beans to these establishments to be converted into cakes, and in some localities the bean-cake maker takes the oil for his recompense instead of money.

When soaked in water bean-cake makes a good winter fodder for cattle. It is also used as a fertilizer. An idea of the trade in this article may be obtained from the following showing, during 1886, in foreign bottoms: Bean-cake, 1,480,048.60 piculs (133⅓ pounds to the picul), valued at 1,196,077 Haikwan taels; beans, 1,898,873.41 piculs, valued at 1,937,260 Haikwan taels.

BEAN-CURD.

This article is used extensively as food. The preparation is simple and the cost low. The beans are reduced to flour, which is boiled until it attains the proper consistency. It is much relished by the Chinese, and possesses the properties of nourishment to a large degree. It contains a large percentage of casine, and it may be a good substitute for milk.

COTTON CLOTH.

The Chinese, as a nation, clothe themselves in cotton garments. The outer garments are usually of a dark blue color. The variations of temperature are met with a greater or less number of garments, and in the winter cotton-wadded clothing is worn.

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FOREIGN ARTICLES.

The hand looms are not sufficient to supply the demand, however, and about $25,000,000 worth of foreign cottons are imported into Shanghai annually. In addition to these manufactures nearly all the articles that are required, such as furniture, utensils, tools, etc., are produced within the province. Particular localities produce particular articles of merchandise, and while there is no system of protecting inventions by patent or trade-marks, numerous articles of manufacture are known by "chops" or brands which obtain celebrity. Certain goods bearing a desirable brand often command many times the price of a similar article without it, but to all appearances equally good.

During 1886 there was imported at Shanghai 276,136 piculs (133⅓ pounds each) of railroad iron, valued at $662,727. Old wire is also imported for the purpose of making nails, which, together with many articles for which we have no name, are made by hand.

BUILDING.

The Chinese have a very limited supply of timber. Such as they make use of in building is from small and inferior stuff, and is sawed up by hand. They make good bricks, which form the universal building material. After the burning process reaches a certain stage the piles are flooded with water, and in this way the bricks are turned out a gray color. The roofs are usually made of tiles, and nearly every province has its own style and size of bricks and tiles. The latter are made in a very simple manner. Clay is plastered around the sides of a tub evenly and then scored off into the desired sizes. They are baked in the same way as the bricks. The houses occupied by the masses are small and flimsily constructed. This is not due to their inability to build well, but to their poverty, which may appear inconsistent with the industrious and simple habits of these people, but it is one of the many paradoxes of China.

Their bridges and temples and the walls of their cities give evidence of their skill in building and engineering, but the tendency to huddle together in villages and cities and the dread of appearing to be possessed of wealth prevents any departure from the rule of cramped, uncomfortable, and unhealthy dwellings.

Throughout this province it would be hard to find a farmer's dwelling that would be considered good enough for a pig-pen with us. A wooden floor is a rarity, and with all that is said about "feng-shui," or lucky location, it would be hard to find a single house in central China where any attempt of a sanitary nature exists. No building is constructed without certain divinations which have reference to auspicious days, and are a part of the absurd series of practices which come within the term of "feng-shui." This term literally translated means wind and water, and it is claimed that originally the Chinese had a regard for sites favorably situated in respect to wind and water, which during centuries has degenerated into superstitious

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rites by which the fiends of the air may be thwarted. There is no doubt that the miserable dwellings of the Chinese cause the great number of diseases and suffering they endure.

With a malarial climate to begin with, and utter ignorance of the principles of the laws of health, the result could not be otherwise than a race of comparative physical inferiority. Malarial complaints are of great variety, and where the pronounced forms may not be visible there exists dull enervating symptoms unfitting people for any more work than will suffice to keep body and soul together, and no doubt lead to the opium habit, the curse of China.

Some of their styles of building are ingenious and are worthy of imitation where economy of materials is the object desired. A substantial building, warm in winter and cool in summer, is made by using a large-sized flat brick laid so as to form hollow squares into which dirt is filled. In cold climates stables or barns built in this manner would be effective against the cold and at the same time cheap.

Another kind of wall is made of gravel and straw. The former is moistened and pressed into wooden frames and allowed to harden when the frame work is removed. The Chinese possess many fine bridges of stone. One noted bridge near Soo-Chow has over fifty arches. The walls of the cities exhibit an astonishing amount of what appears in these days wasted energy. The wall of Nanking is 27 miles in circumference and from 40 to 80 feet in height.

The fact that many of the walls surrounding the cities of China are centuries old prove the quality of their materials and workmanship.

In China a coarse paper is mixed with their mortar instead of hair. This paper is soaked and worked into the mortar just as we would mix in the hair and answers the purpose equally well.

DRAUGHT ANIMALS.

In central China the only branches of agricultural work not performed by man-power are plowing and pumping water into rice-fields, and for this work the water buffalo and the cow are brought into use. They are rarely if ever used double. The ordinary cow, or red cow as the Chinese call her, is admirably fitted by nature for the task of plowing, having a hump on her shoulders over which the yoke is fitted. The plow in general use is made of wood and answers the purpose of the Chinamen who only wish to turn over a few inches of soil. This ancient form of plow is guided by the right hand while the left is employed in guiding the animal by means of a cord attached to a ring fastened in the nose.

The pumps used for flooding the rice-fields are made of wood and like all other Chinese implements are a rude contrivance. A large wheel lying horizontally, a few inches from the ground, revolves on an axis, with cogs in a small wheel which keeps an endless chain of pockets in motion carrying the water up from 15 to 25 feet.

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The buffalo, which is generally used for pumping, has to step over a portion of the machinery at each revolution, and being the least graceful of all animals, the whole thing appears to be a great waste of power and clumsy in the extreme. A thatched roof protects the buffalo and machinery from the weather. Another manner of operating the same form of pump is by a tread-mill apparatus worked by men. The natives in this section of China do not use beef as an article of food. The price of a full-grown cow or buffalo is from $10 to $30.

OPIUM.

A description of Kiang-Su and its inhabitants would be incomplete without a reference to the habit of smoking opium, which is so widespread that it is safe to say that nearly every family in the province is affected by it directly or indirectly. Much has been written on the subject, and even at this day a few endeavor to deny the harmfulness of the habit while a larger number attempt to belittle the moral and physical ruin it creates.

This line of argument, as a rule, is usually confined to those who are interested in the sale of the drug or those who have not had an opportunity of witnessing the results caused by its use. Aside from the heavy duties imposed upon the imported opium, which amounts to about $150 per chest, there appears to be no restriction to the free indulgence in the habit. Even the eloquent warnings denouncing the habit and picturing the frightful degradation and misery that the opium smoker experiences before death removes his wretched body, which were formerly so frequently posted in public places, are rarely seen at the present time and the mandarins, who are forbidden to smoke opium under severe penalties, are much addicted to the habit, the regulations being practically of no importance. Opium smoking is a habit that may be inherited or acquired. Often the beginner takes a pipe now and then socially, and before he is aware of it he has become so attached to the effect produced that he can not give it up. Others try a pipe as medicine, hoping to find relief for their ailments, and in this way soon become victims to the habit, for it quickly takes hold of the system and few have the power to rid themselves of it when once acquired. It is an expensive habit to begin with, and out of all proportion to the average income of the Chinese. It also consumes a great amount of time, and the reclining position adopted in smoking tends to laziness, and utter demoralization seems to be the one result of inveterate smoking.—SHANGHAI, *February 2, 1888.*

J. D. KENNEDY,
Consul-General.

DISCONTINUATION OF LEKIN COLLECTIONS IN OPEN PORTS IN FORMOSA.

The Tsungli Yamên has agreed to instruct the governor of Formosa to cease the imposition of lekin on native produce the property of foreigners within any open port or while in transit from such port to the place of shipment.—PEKIN, *March 19, 1888.*

CHARLES DENBY.

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CAMEO GLASS OF BIRMINGHAM.

Stourbridge, within a few miles of this town, and within my consular jurisdiction, has a world-wide fame as a place of manufacture of fine and high-art glassware. I have recently visited it to gain some information as to the origin and manufacture of cameo glass, now forming an important factor in the shipments to the United States, and a monopoly enjoyed by this district alone, as nowhere else in the word is it produced.

BRIEF HISTORICAL ACCOUNT OF GLASS CAMEO.

That glass making dates back to the ancient Egyptians is pretty conclusive, from the fact that glass makers at work are represented on the tombs of Beni Hassan, 2000 B. C., and the engraved head of Queen Ybatason, wife of Thontines III, 1500 B. C., now in the British Museum, further corroborates and also shows that the art was by no means in its infancy at those periods. Articles of glass discovered in Egyptian mummy cases show that they well understood the composition, the coloring with metallic oxides, the making, and the engraving of it. That through friendly and warlike intercourse glass making was learned from them by the Phœnicians, Sidonians, Assyrians, and later by the Romans, who carried the manufacture to a very high state of perfection, is clear and well borne out by many existing examples. Those transcendent masters of art, the Greeks, although acquainted with the Egyptians at a very early date (first Græco-Theban war, 1225 B. C.), (Græco-Egyptian war, 460–465 B. C.), and so well qualified to beautify it, do not seem to have taken up glass making; at least few if any specimens of glass have been discovered among their ruins. Certainly they may have been robbed of their glass, as they were of their statuary and other works of art, by the raids made upon them by the Romans and others from time to time, but we have found no mention by contemporary writers of their having made glass.

The origin of the Etruscans is somewhat uncertain, they are said by some to have been an early Greek colony, with an innate love of art, and true artistic skill derived from their origin, and this theory is substantiated in some measure by the similarity of forms employed, and by their pottery and art works being decorated with subjects taken from incidents in the real and fabulous Grecian history. The Etruscans, like the Greeks, did not make glass themselves, but through conquest by the Romans, who were superior in arms (and defeated them, 506 B. C.), but who were much inferior to them in all matters of art. They found in the Roman glass a suitable medium for conveying their ideas of beauty, so that with art derived from the Greeks, and applied to glass by the Etruscans, and with a glass manufacture derived from the Egyptians and perfected by the Romans, were produced those grand specimens of which, perhaps, the celebrated Portland vase is the finest yet discovered.

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The early meaning of the word cameo was simply an onyx (having different layers of stone), but the later designation of a cameo is an anaglyph on a precious stone. An anaglyph is when the figure is raised in relief, an intaglio when the figure is hollowed out.

The engraving of stones, gems, etc., is a very ancient practice. We read in Exodus XXVIII, 9th verse, that Moses (in 1491 B. C.) was commanded to "take two onyx stones and grave on them the names of the children of Israel," and in the same chapter, 11th verse, "with the work of an engraver in stone, like the engravings of a signet, shalt thou engrave the two stones with the names of the children of Israel;" also that Jezebel sealed the order for Naboth's death with the king's seal (1st Kings XXI, 8, date, 899 B. C.). The art is said to have originated with the Egyptians, who cut the hardest stones, as their "scarabei" testify, and passed at a very early period, more or less indirectly, to the Greeks and Etruscans, by whom it was carried to a state of perfection. We find that Theodorus of Samos engraved the ring of Polycrates 522 B. C., and that Pyrgoteles engraved seal rings for and produced a gem portrait of Alexander the Great 340 B. C., also that Tryphon engraved the celebrated cameo in the collection of the Duke of Marlborough, representing "the marriage of Cupid and Psyche," about 300 B. C.; this latter date seems to have been the flourishing period of the glyphic art.

Pyrgoteles worked in relief, and from his time the art may have risen gradually to that degree of perfection of which we possess such rich specimens. The engraving previous to his time was most probably intaglio.

As in the case of the coins of the period, which point to the excellence of the engravers' art in the producing of molds, they were often signed with the worthy artist's name. Thus the names of Dioscorides, Apollonides, Evænetus, of Syracuse, Cimon, etc., remind us of the most perfect works. The artist made use of the lathe, the maxium, the diamond point, and diamond powder. It is not surprising that the Venetians, who revived glass making about the thirteenth century, even in their most flourishing time did not imitate the cameo, for they lacked the manipulative skill of decoration.

Ancient glass that has happily come down to our time reveals the ravages made upon it by time, producing that vondescence and decayed appearance due to a great extent to a want of chemical knowledge in proportioning the material of which it is composed. Now that these difficulties in the manufacture have been overcome, by which it has been made to assume a more definite chemical compound, its durability has been much prolonged, and it has been enabled to withstand the action of solvents and even the corrosive action of acids.

MODERN WARES.

For the modern production of glass cameo we are indebted to Mr. John Northwood, of Stourbridge, where early ambition to copy the famous Portland vase was created in him by listening to the conversation respecting it of his fellow-workers in the workshop, where, then quite a youth, he was engaged. His master, the late Mr. Benjamin Richardson, a man of broad ideas, and a

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pioneer in the glass trade, would often speak of the wonderful glass cameo vase in the British Museum, and as an incentive would offer the youths "a £1,000 for the one that would execute a good copy of it in glass," remarking that Wedgwood's was a faithful artistic imitation, but was wanting in the effect of the original, due of course in a great measure to the material of which it was composed. When Mr. Northwood saw the original he was at once astonished and delighted at the wonderful execution and beautiful effect. He fully realized the truth of Mr. Richardson's remarks, and from that time began experimenting, always with the aim in view of reviving the art of glass cameo, and taking the Portland vase as a standard of excellence. Having by this time established himself in business as a glass decorator, invented that wonderful piece of mechanism, the "etching machine," now so extensively used, and brought to a commercial success the fluoric-acid process, his resources were much widened. The first successful example in cameo was a flint-glass claret-jug for the eminent firm of glass manufacturers, Messrs. Stevens & Williams, in January, 1865. This piece, although on account of the long process of execution a commercial failure, gave him confidence in his work, and is believed to be the first glass cameo produced since the ancients. Shortly afterwards he received a commission from South Kensington Museum for one or two specimens of art workmanship in glass. This was the time when he decided to try and get a colored vase made after the manner of his ideal by one of our manufacturers. For up to this time, owing to physical and manipulative difficulties, a double-cased vase was out of the question. Failing in this he commenced upon a two-handled flint vase, on which he copied a portion of the frieze known as the "Elgin marbles." It was seen in an unfinished state by a Birmingham gentleman, J. B. Stone, who pressed the artist to let him become the purchaser. This done, he presented it to the Birmingham Art Gallery, and gave Mr. Northwood a further commission for a colored vase. In applying to Mr. P. Pargeter, a local glass manufacturer, to make it, he agreed on the condition that a copy of the Portland vase was first executed for him. To this he willingly consented. The opportunity so long wished for was at hand. He relates how on his first visit to the British Museum for the purpose of making notes of the original, after stating his object to the officials, he was looked upon as an ambitious curiosity from the country; but about three years after this he was congratulated all round on his successful copy.

This was followed by further commissions from Mr. Pargeter, Messrs. Stevens & Williams, and Messrs. J. Webb & Sons. For the latter firm he executed the large piece known as the Dennis vase, shown in a partially finished state at the Paris exhibition, 1878, and which is now in the United States.

These works were all carved with the steel point and were high in relief. A demand for a less costly commercial cameo caused works to be executed in much lower relief, in which case flowers and ornaments can be modeled with very nice effect by the engraver's wheel; but for figure and first-class works

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of art the point is indispensable. Mr. John Northwood has now been engaged for several years at the well-known works of Messrs. Stevens & Williams, of Stourbridge, where he has developed this class of work to a high state of perfection, and many specimens of their production are now distributed over the most civilized parts of the world.

There is perhaps no question that these beautiful wares can be produced in the United States, it only requiring the importation of skilled labor. In my report on emigration I referred to the means which should, in my opinion, be adopted for attracting to the labor market of America a greater proportion of the skilled artisans who are constantly leaving this district for other spheres where their labor and talents are in demand. I can not help thinking that the old labor law, which for so long a time has been deemed obsolete, but which has of late been revived in the States, has a detrimental effect which seriously affects the development of skilled labor in America by retarding the emigration of many first-class workmen who are persecuted under the laws referred to from entering into any engagement with American employers where a contract or the passage-money has been contracted for in such engagements.—BIRMINGHAM, *April 20, 1888.*

JOS. B. HUGHES,
Consul.

PROPOSED PIPE LINE IN RUSSIA.

The project to connect the Caspian with the Black Sea by a pipe line—to which reference was made in my former report upon the subject of Russian petroleum—seems about to be realized, if the information that reaches this consulate from an ordinarily reliable and trustworthy source is to be credited. This intelligence is to the effect that The Caspian and Black Sea Naphtha Conduit Company has at last been formed, and that the work is to completed in three years and six months.

The conduit from the small peninsula of Abcheron, on the Caspian, is to have a forked line on the Black Sea, reaching Batoum and Poti. The capacity of the proposed pipe line is to be such as to admit of the passage daily of 240,000 puds—1,200,000 gallons (5 gallons to the pud)—of naphtha. The maximum tariff will be 10 copecks, and the company is to pay to the Government a royalty of half a copeck per pud. The capital of the company is fixed at 14,000,000 roubles, and its property and plant are to pass to the crown after the lapse of sixty years.—BEIRUT, *April 18, 1888.*

ERHARD BISSINGER,
Consul.

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EMIGRATION VIA HAMBURG TO THE UNITED STATES.

The following table shows the number of immigrants landed in the United States from Hamburg (direct and indirect) during the first four months of 1888, as compared with the same period of 1887:

Month.	1887.			1888.		
	Direct.	Indirect.	Total.	Direct.	Indirect.	Total.
January	1,288	808	2,096	1,473	1,205	2,678
February	1,643	1,063	2,706	2,909	2,219	5,128
March	4,299	1,664	5,963	4,803	2,301	7,104
April	4,155	1,401	5,556	9,826	4,157	13,983
Total	11,385	4,936	16,321	19,011	9,882	28,893

The above shows an increase over 1887 of about 77 per cent. — HAMBURG, *May 14, 1888.*

WM. W. LANG,
Consul.

EXHIBITION FOR THE PREVENTION OF ACCIDENTS.

In former reports I have called attention to certain laws of the German Empire insuring working people against accidents. To make these laws more effective, and particularly to show practically how accidents may be prevented, the project of an exhibition is near its realization. The exhibition is to take place from April to June, 1889, and the Prussian Government has permitted the gratuitous use of the large exhibition place in Berlin near the Thiergarten and the Lehrte railroad depot for that purpose. The invitation to participate in the exhibition is extended to all nations, and I deem the project of sufficient importance to make it the subject of a report to the Department.

Permit me to give you from circulars and pamphlets before me, and from personal inquiry, a detailed statement regarding the objects and purposes of the exhibition.

I. — THE OBJECTS AND PURPOSES OF THE EXHIBITION.

The articles to be exhibited shall consist of machinery, apparatus of all kinds now in use to guard against accidents, tools, working pieces and working materials in models; in plans, drawings, photographs, and specifications; in copies of regulations, rules for factories, statutes and printed matter relating to accidents and to their prevention, as far as they come under the province of trades and factories defined by the German accident insurance acts (Unfallversicherungsgesetze des Deutschen Reiches). All articles that relate generally to the protection of laborers and to the promotion of their welfare and safety at the works insured will be admitted.

As a rule the exhibition of articles in natural size and of models will be prepared. Machines should, as much as possible, be exhibited in operation. Since not only protective contrivances but also complete machines and apparatus with protective devices are to be exhibited, the exhibition will have, to some extent, the character of an industrial exhibition, with the

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difference only that objects which serve solely for technical purposes, and can not be classed as contrivances for the protection of working people against accidents, are excluded. It is not intended to show merely the efficiency of any machine, but rather the efficiency of the same in connection with devices for the prevention of accidents. The best protective device renders a bad machine not recommendable; but a machine, good in itself, furnished with model equipment for the purpose of preventing, as much as possible, accidents, must in future, considering the burden under the accident laws cast upon the trade associations, of necessity deserve preference over a like good machine, being, however, without satisfactory appliances for protection. The exhibition will, therefore, offer an opportunity particularly to all manufacturers of machines who hitherto have taken a special interest in the question of such perspective measures, or, in future, intend to do so, to introduce their productions to the members of trade associations.

But not only is the exhibition for the participation of manufacturers of machinery and of persons who construct protective devices, but it is also intended to familiarize all parties interested with the character and technical merits of all protective devices in use, and to give them an opportunity to judge of their value and effectiveness. It is therefore considered of great importance that owners of factories and others who use or are to use such protective devices, and not merely manufacturers or constructors of such, should send models, drawings, photographs, and specifications to the exhibition.

Groups 1 to 12 contain detailed suggestions to enable manufacturers and masters to answer for themselves the question how far their participation in the exhibition may be conducive to valuable results.

No one should incline to the idea that any device he has introduced for the protection of laborers is too insignificant to deserve exhibition. The prospectus says: "To this exhibition the motto applies, 'Nothing is of so very little value as not to serve to protect and preserve human life.'"

In the classification of the articles to be exhibited the point of view was taken that many machines, apparatus, etc., are of so general a nature—such as motors, transmitters, elevators, steam boilers—that they and the protective measures to be applied to them might be regarded as a feature common to all works and factories insured. The division into groups provides, therefore, for a department (A, groups 1 to 10) which embraces these interests in common, while an additional department (B, groups 11 to 21) takes into consideration the special interests of single trades. A third department (C, group 22) embraces literature in relation to all these subjects.

The division into groups is as follows:

DEPARTMENT A.

Groups 1 and 2: Prevention of accidents near movable machine parts generally; productive devices in transmission shafts, toothed wheels, beltings; disengaging gear, lubricating appliances, etc.

Group 3: Protective measures in the working of elevators, lifters, cranes, derricks, and other raising apparatus and machines.

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Group 4: Protective measures on motors.

Group 5: Protective measures in the operation of steam boilers and other apparatus under pressure.

Group 6: Preventive devices against, and safety devices in case of, fire in insured works and workshops.

Group 7: Providing for good illumination and prevention of accidents by means of lighting arrangements.

Group 8: Prevention of accidents caused by poisonous (caustic or corrosive) substances, noxious gases, etc.

Group 9: Personal equipment of laborers.

Group 10: Providence for injured persons.

DEPARTMENT B.

Group 11: Steps for the protection and well-being of working people in the metal industry.

Group 12: Steps for the protection and well-being of working people in the wood industry.

Group 13: Steps for the protection and well-being of working people in the textile industry.

Group 14: Steps for protection in the paper, leather, and polygraphic industries.

Group 15: Protection in the industry of articles of food and consumption.

Group 16: Protection in the chemical-glass industries.

Group 17: Protection in the mining and quarry industries.

Group 18: Protection in building trades.

Groups 19 and 20: Protection in the trades of intercommunication.

Group 21: Protection in the farming and forestry industries.

DEPARTMENT C.

Group 22: Literature (library of the exhibition).

If the division into groups does not precisely define the limits of the prevention of accidents, but considers also the protection of laborers generally and their well-being at works insured, the following reasons may be cited for so doing:

Prevention of accidents and prevention of disease can not be easily separated. The sudden action of poisonous gases produces upon the human organism frequently an injury which is denoted as "accident;" while in case of gradual action of the identical gases in the course of years an injury is caused which is designated as "industrial disease." Yet, doubtless, all that is done towards the prevention of such diseases must be likewise considered as a measure for the prevention of accidents. Thus in some instances the removal of steam and dust must directly be regarded as a measure to prevent accidents, since, as experience teaches in workshops which are filled with dust masses or opaque steams, accidents more frequently happen than in places with pure air and free outlook. But an additional argument may be adduced: A laborer who works in a good, wholesome air will meet immi-

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nent danger with a much clearer head than the person whose head is affected by the bad air in which he is compelled to perform his day's work. Nor will the healthy, strong laborer as easily succumb to the consequences of many accidents. From these and other cognate reasons devices for the ventilation of workshops and many other things which, at the first glance, may appear as extraneous and hardly appurtenant to an exhibition for prevention of accidents, have been embodied into this division of groups as subservient to the ends of the exhibition.

Special attention has been bestowed upon the protective measures on movable machine parts, as official statistics compiled for the year 1886 at the imperial insurance office show that, irrespective of the prevalence of various occasions for accidents in the several trades in the entire sphere of "insurance in case of accidents," such accidents as were caused by movable machine parts occupy, among the more severe cases, the first place in number. Not less than one hundred thousand cases of accidents were reported in the year 1886; 10 per cent. of the laborers injured under the insurance laws being entitled to an indemnification.

II. — Division into Groups. — Department A.

Protective measures in the joint interest of factories and workshops.

Group I.

Prevention of accidents near movable machine parts generally; protective devices in transmission shafts, toothed wheels, beltings, etc.

1. Protective devices on shafts: Vertical and horizontal shafts, or "models, drawings, and photographs" of shafts and shaftings, with judicious safety devices for the protection of laborers. Wrapping, sinking, avoiding of projecting wedges and screws in shaft connections (couplings), and in the fixing of machine parts (pulleys, cog-wheels, regulating rings, etc.) on shafts; contrasting of dangerous couplings having projecting parts with couplings provided with wrappings or with novel constructive improvements with a view of preventing accidents.

2. Protective devices near toothed wheels: Toothed-wheel gear in transmitters and motors with expedient wrappings (capsules, railings, protectors of all descriptions), especially having regard to securing a convenient approach to wheels often to be exchanged or lubricated, and to the recovery of lubricating materials scattered about; arrangements by which, owing to a displacement of the wheels, dangers to laborers are, from the very outset, prevented.

3. Protective devices near beltings: Pulleys, if in relation to the purpose of preventing accidents, avoiding of defects in the edge of sheave flanges composed of two or more parts; solid sheaves, sheaves of wrought iron, corrugated-iron plates, etc.; belt couplings (belt joints) without projecting parts; appurtenant tools; contrasting of dangerous with safe belt couplings; devices to prevent the belts from sliding off the pulleys; belt sheaves, with

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flanges or central collars; iron cams alongside the pulleys; use of tension rollers; application of belts not tensible in moist rooms, etc.; devices near beltings for the prevention of dangerous contact, and for the protection against flapping, off-falling, or tearing belts (surrounding guards, protective casings, catchers, etc.); devices for the reception of belts shifted off, and for throwing on and off of belts, belt hoops, forks, supporters; poles with fingers; strap-arbors and strap-supporters co-operating, and mechanical strap-shifters of every description.

4. The like points of view (1–3) applied to axle-trees and machine spindles; to rack-gears; to cord-chain or strap-wheel work; to fly-wheels and rotatory, oscillating, and shifting-machine parts.

Group II.

Disengaging, braking, and lubricating devices, etc.

1. Disengaging and braking devices: Loose pulleys (idle pulleys) and disengaging forks for transmitters and motors; friction devices for motors and separable couplings (especially new systems of friction and centrifugal couplings); devices for the guarding against automatic throw-into gear; loose pulleys having a diameter smaller than the pulley; singling out of loose pulleys (application of particularly durable casings, etc.); securing of strap-forks and of lifter-levers on couplings by means of screws or notches, pins, hooks, springs; combination of disengaging gears with braking devices; arrangements which, in case of danger (for instance, if the hands are caught by roller-pairs), allow the laborer to throw out of gear without the use of hands (foot-boards, cords drawn); arrangements which admit of stopping larger motors or of transmissions from different places and remote points.

2. Lubricating devices: Improved oil caps, which, owing to their arrangement, prevent the shedding of lubricating material, and thus the floor from getting slippery, and otherwise contributing to lessen the danger for the laborer; application of poles for safely reaching high bearings, etc. Automatic lubricating devices of every description for liquid and consistent lubricating materials for use in stationary and oscillating bearings, loose pulleys, etc. Self-lubricating brushes and brasses.

3. Pole brushes and similar implements for the diminution of danger in greasing toothed wheels, in giving strap grease, in cleaning (rubbing with emery) shafts, couplings, pulleys, rollers, and other movable machine parts.

4. Ladders, with special devices (for instance, at the top with hooks or at the bottom with points and rubber covers), foot-planks, foot-boards, handles, and other appliances and devices which, by establishing a fixed stand, diminish the danger for the laborer when greasing, cleaning, and performing other work near transmission shafts and other movable machine parts.

5. Directions for transmission helpers and for the performance of work near machines generally.

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6. Exhibition of entire sets of transmission establishments with model equipment, with a view of preventing accidents.

GROUP III.

Protective measures in the working of elevators, derricks, cranes, and lifters.

Safety casings for approaches to elevators and lifters; self-acting shutters; basket roofs for protection against falling bodies; devices for securing (holding in place) the raising-box in loading and unloading.

Driving, stopping, and breaking devices; catching devices; signal systems for indicating the motion of the elevator; signal boards and boards of warning; work instructions; hydraulic and pneumatic lifters; elevators; cranes of all sorts; safety cranks and windlasses, winches, safety chains, cords, and belts; exhibition of entire sets of elevator arrangements.

GROUP IV.

Protective measures near motors.

1. Steam-engines: Safety casing of the fly-wheel, of the cranks, of through-going piston-rods in horizontal cylinders, in conical-wheel gear in governors, of governors themselves in case of a low location of the governor-balls, of the main strap or main tooth-wheel gear, of the connection of shafts in double or co-operative machines, of projecting shaft heads, and other movable parts.

Devices for dangerless reaching of high placed parts of the machine, foot-planks, boards, etc.; self-acting lubricating devices in crank-pins or wrists, cross-head bearings, eccentrics.

Devices for a dangerless starting of fly-wheels, lever devices, clincher work, friction impetus, as well as for braking and a secure holding in place when repairs are to be made. Communications on the bursting of fly-wheels; protective constructions, and directions for use on the subject.

Cut-off valves which admit of a reliable and immediate stopping of the machine.

Signal systems for the purpose of communication between steam-engine and working rooms and *vice versa* when starting the machine and in case of motor accidents.

Devices for the direct stopping of the steam-engine at any time from the working room; simple wire drafts, application of electric or pneumatic devices.

Instructions for steam-engine helpers; schools for training machinists.

Exhibition of entire steam-motor constructions, which, considering the construction of the machine, the machine-room, and the details of equipment, satisfy all requirements for the prevention of accidents.

Rational application of the above and other features having relation to the subject; for instance, providing for keeping tight the shutters near water motors, pipe conduits in gas motors, etc.; to turbines and water-wheels; gas-power, petroleum, benzine, hot-air, electric, and animal motors.

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Group V.

Protective measures in the operation of steam boilers and other apparatus under pressure.

Steam boilers and generators; articles of equipment for safety: Water-gauges; protective casings for water-gauge glasses; devices for automatic cutting off of steam and water in case of break of glasses; manometers; safety valves; automatic feeding devices; automatic apparatus, with signal and alarm devices, to indicate too low water level, too high a steam tension, and the like; devices for cleaning feeding water; packing of steam conduits; measures for a safe cutting off of neighboring boilers from each other, and other measures of precaution in the cleaning of boilers.

Formation of pan scales in boilers; parts of exploded boilers; materials for constructing boilers and testing of same; boiler systems; constructive system of boiler-houses; boiler inspection matters; instruction of service for boiler helpers; firemen schools; exhibition of entire boiler construction, with model equipment.

Steaming, boiling, and dyeing apparatus, and other apparatus under pressure of steam, gases, air, and liquids of more than one atmosphere; articles of equipment for safety; pressure, diminishing, rarefying valves, etc.; inspection matters.

Group VI.

Preventive devices against, and saving means in case of, fire in works insured.

1. Fire-proof building constructions generally, construction and material of partition walls and ceilings, roofing, fire-escape doors, etc.

Safe storage of supplies and waste; measures against spontaneous ignition of materials; incombustible curtains for the prevention of the spreading of fire generally at working places; fire-proof impregnation of wooden parts, stuffs, and working implements; asbestos and its application for fire-proof devices; measures of precaution for heating; apparatus for dangerless boiling of varnish, pitch, and other easily inflammable matters.

Spark catcher; lightning-rod constructions.

2. Apparatus indicating too high temperatures in drying-rooms and the outbreak of fire.

Automatic quenching devices; hydrants; system of pipe conduits; use of boiler steam for quenching; use of existing driving gears for the operation of quenching apparatus; water reservoirs; quenching tubs; hand, steam, gas fire-engines; extinguishers; quenching bombs.

3. Fixed and movable saving or escape ladders, escape nets, clothes, hose, cords.

Organization of fire brigades; equipment of firemen; representation of spaces and arrangements for keeping ready-quenching and escape implements; directions of service.

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Group VII.

Providing for good lighting and prevention of accidents from lighting devices.

Apparatus and articles of all kinds which serve for lighting closed working spaces, and of working places in the open air; lamps, lanterns, etc.

Devices for lighting from outside spaces presenting danger of fire and explosion; safety lamps and lanterns; safety fire-lighters; electric gas-lighters; use of phosphorescent colors.

Safety receptacles for working establishments for the reception of larger supplies of petroleum and burning oil; apparatus for dangerless and cleanly taking small quantities of oil out of the receptacles (retail distribution for daily demand).

Devices for dangerless self-manufacture of lighting gas (from coal oil and waste); electric lighting constructions for works, especially with a view of utilizing existing working forces; organization of the lighting system and works; provisions (rules) as to filling, lighting, and extinguishing of oil lamps; as to the management of gas conductors; as to the procedure in case of imminent gas explosion; as to the attendance of electric-lighting machines and conductors.

Group VIII.

Prevention of accidents from poisonous and corrosive substances from noxious gases, etc.

Apparatus for safe storage of poisonous and corrosive substances used at works; litters and hand-cars for dangerless moving of vessels containing acids; devices for dangerless taking of smaller quantities of acids out of vessels and receptacles.

Devices to prevent a rise of poisonous fumes at the openings of charging furnaces and apparatus; closures of retorts and the like; mechanical devices by which noxious substances are destroyed instead of being absorbed by working men; communications as to the use of non-injurious materials instead of poisonous raw materials and products, or of such as are detrimental to health.

Ventilators, exhausters, and exhausting arrangements generally for the absorption of poisonous or injurious gases and for the freeing of working rooms from dust masses and steam.

Devices of every description for airing and heating work-rooms; devices for moistening and cooling the air in work-shops; apparatus for the examination of the working air in relation to any gases, dust, moisture, etc.

Washing, bathing, and privy arrangements for working establishments; articles of equipment for the kitchen; working people's clothing and food.

Group IX.

Personal equipment of working people.

Work dresses suited to use for transmission attendants, as well as for male and female laborers near machines generally.

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Protective eye-glasses and masks of every description for protection against pieces of working materials scattered round; gloves for use in pushing and handling sharp-edged work pieces; leather aprons and gaiters of leather furnished with iron plate; shoe coatings and special shoes and boots for like purpose.

Work dresses affording protection against unusual temperatures or wetness; divers' clothing; articles of equipment for the handling of glowing masses, hot or corrosive liquids; use of asbestos, glimmer, etc.

Respirators of every description for protection against dust and gases when at work.

Helmets or cask apparatus with devices for the admittance of fresh air; equipment of men who, for the saving of persons met by an accident, repair to places filled with fumes, steam, or fatal gases (buildings on fire, canals, pits, wells, etc.).

Detailed communications as to the experiences made especially with the various systems of protective spectacles and respirators at the works insured; for the elimination of the really useful information from the unavailable.

Devices attached to simple tools for the protection of laborers; for instance, protective baskets to chisels for catching chips and splints in riveting works; hilt baskets on blades and on hooks for getting extraneous bodies out of roller pairs, etc.

Improvements in tools of every description with a view of preventing accidents; for instance, safety guards in fastening hammer handles.

GROUP X.

Providence for injured persons.

Instructions for the first assistance in accidents for the use of the persons employed at the works insured; suitable material and boxes for dressing wounds; litters, transportation caskets and cars and the like; providing for rooms to dress wounds at works and for houses for sick and invalid laborers; artificial limbs for mutilated persons, and mechanical arrangements for the assistance in lighter works of mutilated persons; for instance, clock movements which make an artificial arm automatically to perform certain work.

Information as to the occupation of invalid laborers.

DEPARTMENT B.

Protective measures, chiefly of interest for several trades or groups of trades.

Here the following points of view must be considered: Motors of the several trades, or models, drawings, and photographs of motors, with model equipment; surrounding guards of movable parts; expedient disengaging and lubricating devices; devices against the out-springing of rotary tools; devices (near machines) for the protection of laborers against parts of work pieces splintering off and against materials flung away; against dust developing during work, against noxious fumes, etc.; automatic feeding devices as well as machines and mechanical appliances of every description performing

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work in the place of laborers; for instance, automatic introduction of stuffs and materials into stamping, kneading, pulping, and rolling works; substitution of hand work near lixiviating vats by automatic stirring and scooping works, etc., with or without protective devices; apparatus under pressure and other apparatus peculiar to the several trades with model equipments, with a view of preventing accidents and of protecting laborers; protective measures near or on furnaces, stoves, or hearths; on basins and deepings; against falling bodies; in the treatment of explosive, inflammable, corrosive substances, and other preventive measures of every description for the protection of life and health of laborers, according to the peculiarity of the several trades; instructions of service in relation thereto; notices of warning, directions; representation of entire working establishments or departments of whole standard establishments (models, plans, photographs, specifications); situation, construction (building, material, style); judicious total disposition of the working places and working arrangements with a view of preventing accidents; location of boiler-shops; mounting of motors, transmitters; grouping of motors and working apparatus; location of staircases, lifting and raising apparatus, the storing-rooms and magazines, the railways, junction rails, water canals, etc.; lighting, heating, airing; charity and humane arrangements for laborers; designs of model establishments for the several trades; collective exhibitions—all of which is to apply to the subsequent groups:

Group 11: Metal industry.
Group 12: Wood industry.
Group 13: Textile industry.
Group 14: Paper, leather, and polygraphic industries.
Group 15: Industry of articles of food and consumption.
Group 16: Chemical-glass and ceramic industries.
Group 17: Mining and quarry industries.
Group 18: Building trades.

Group 19: Trades of intercommunication on land. 1. Arrangements for the increase of the safety in loading and unloading, as well as in storing, heavy goods—bales, barrels, casks, round wood, rails, stone blocks, etc.; devices for a safe fastening (cording, etc.) of lowries and trucks when lightly loaded; improvements in transportation, vehicles, and harness; efficient braking and stopping appliances ready for use at any time; improved treadles and catch-handles; judicious lighting appliances; safety-reins; appliances for quickly disengaging bolting horses from carriages. 2. Prevention of accidents of insured persons in railroading.

Group 20: Trades of intercommunication on water: Lighting of coasts, river banks, water roads; ship lanterns; signals; examination (fathoming, piling) of the fair way. Saving systems: Life-boats and rafts, life-buoys, beacons, rings, clothing, etc.

Group 21: Farming and forestry.

Industries and trades carried on on account of either of the states or of the Empire are to be annexed to groups to which they naturally belong.

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DEPARTMENT C.

Group 22: Library: Rules and regulations to prevent accidents; tariffs according to the risks connected with each trade association; rogatory sheets for the taxation of trades; forms of accident records and for adjusting claims for indemnification to be filed; provisions of law in regard to service; notices of warning; directions for laborers; instructions of service and reports by the controlling officers; printed matter of every description having relation to accident statistics, insurance, and prevention, to the protection of laborers generally and to the promotion of their well-being.

In sending printed matter intended for exhibition, in the groups 1 to 21, it is requested that an additional copy be sent for the use of the library.

III.—REGULATIONS FOR EXHIBITORS.

1. For exhibition are admitted all articles which are designed to promote the ends of the exhibition (compare sections 1 and 2 of this report). Foreigners are invited to exhibit.

2. Articles to be exhibited must be reported on a special form prepared for that purpose and obtainable from the secretary of the exhibition. The application must be transmitted, in duplicate, at latest by July 1, 1888, to the secretary of the exhibition, Director Max Schlesinger, No. 3 Koch street, Berlin, S. W. Whether such application has been accepted, would-be exhibitors will receive notice as soon as possible after receipt of their application.

3. Exhibitors will pay an admittance fee of 25 marks, and a rent for the space allowed, viz: Per square meter ground surface within the exhibition premises, 20 marks; per square meter wall surface within the exhibition premises, 10 marks; per square meter ground surface within the arches of the city railroad, 15 marks; per square meter wall surface within the arches of the city railroad, 7.50 marks; per square meter ground surface in open air, 10 marks. The fee of admittance is to be remitted with the application to the secretary above named. Of rent for the space in every instance at least the price for 1 square meter must be paid. Payment of space rent has to be made within four weeks after the allowance of same. This applies also to cases in which the grant ensues at the time of the acceptance of the application. Only full square meters are given. In case of articles of exhibition for the library neither a fee of admittance nor space rent will be collected. The same applies to drawings and models, inasmuch as they are exhibited by owners of works who do not make it a business to sell or dispose of such.

The managers and the committee reserve to themselves the right to exclude improper objects, and in this case fees and rents paid will be returned. Applications made after July 1, 1888, will be considered only if any vacant space remains.

The exhibition is to be opened early in April, 1889, and is to continue three or four months.

Objects for the exhibition must be forwarded, free of cost, between the 1st and 15th of March, 1889. All expenses incurred must be paid by the ex-

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hibitor. Upon application tables, cases, etc., will be furnished at net cost by the committee. All articles sent to the exhibition must be removed within eight days after the close of the same.

The committee will secure cheap transportation, freight, and custom-house facilities. The result of its endeavors in that direction will be shortly published.

It is further provided that no object exhibited can be removed before the close of the exhibition. Exhibitors may distribute circulars and sell articles, but not remove any unless replaced previously by another article of the same make and character. The committee will see to the insurance of articles, but take no other guaranty. Exhibited articles will be carefully guarded, but all other expenses must be paid by exhibitors. Steam-power will be provided and the price for its use published. Awards for eminent achievements are intended. If an exhibitor wants to be treated as *hors de concours* he should so state in making his application. The admission fee for visiting the exhibition will be fixed by the business committee. Exhibitors enjoy free admittance. Reduced rates of admission to the exhibition, as well as railroad fares, will be made for the benefit of working people. A catalogue will be issued and special terms for the insertion of advertisements in the same will be published.

It is under consideration to publish a complete illustrated report, with a full description of the articles exhibited, after the close of the exhibition. It is of interest to exhibitors therefore to file, in the library of the exhibition, suitable sketches and descriptions of the articles exhibited.

IV.—The Origin of the Project.

The plan to arrange an exhibition of this kind originated with the Institute for Brewing ("Versuchs-und Lehr-Anstalt für Brauer") in Berlin, which, on the occasion of a general meeting in May, 1887, subjected the question of preventing accidents to laborers to a careful discussion. The Malters and Brewers' Association of Berlin accepted approvingly the project, which at once received additional encouragement on the part of the imperial insurance department and the Prussian ministers of instruction and of commerce. The exhibition place was offered gratuitously by the Government to the committee constituted; and the press as well as philanthropists directed attention to the project as being particularly appropriate at a time when social-political legislation claimed general attention. A committee, consisting of ten members, was formed, and a guaranty fund of 100,000 marks subscribed. Any surplus produced by the exhibition is to be given to purposes of public good; for instance, for a "permanent exhibition of articles for the prevention of accidents" and for the erection of a hygienic museum.

V.

Besides the business committee above mentioned, an honorary committee, at present consisting of one hundred and ninety-one members, was

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formed, its honorary chairman being Mr. Bödiker, president of the imperial insurance office. The members of this committee are prominent manufacturers, owners of industrial works, mines, etc., and scientists.

The business and finance committee consists of Mr. O. Bischoff, brewer, Danzig; Professor Dr. Delbrück, scientific director of the Berlin brewing school; Mr. Ephraimsohn, brewer, Berlin; Richard Roericke, member of the imperial insurance office, Berlin, chairman; Max Schlesinger, secretary of the committee, and others.

The board of directors consists of Richard Roericke, president, 55 Wilhelm street, Berlin; B. Knoblauch, vice-president, 11–13 Landsberger Allee; M. Happoldt, treasurer, 32–39 Hasenhaide, Berlin; Max Schlesinger, secretary, 3 Koch street, Berlin. Commissioner of the imperial insurance office, Mr. Reichel, imperial councilor of Government.

Besides these bodies officiates a board of delegates chosen by the members of the honorary committee. To this board of delegates, and to the board of directors, is intrusted the joint settlement of technical and formal questions in respect of this exhibition.

VI.—Special Boards of Commissioners.

Special boards of commissioners, upon whom is incumbent the settlement of affairs touching the several groups, have also been appointed, with the following chairmen, viz:

1. Groups I, II, and III: E. Becker, 100 Chaussee street, Berlin, N.
2. Groups IV and V: E. Kaselowsky, 18 Chaussee street, Berlin, N.
3. Groups VI and VII: Rudolph Cuno, 113 Potsdamer street, Berlin, W.
4. Groups VIII, IX, and X: P. Heckmann, 9 Goerlitzer Ufer, Berlin, S. O.
5. Group XI: C. Richter, 66 Wilhelm street, Berlin, W.
6. Group XII: Ferd. Alb. Vogts, 43 Franrösische street, Berlin W.
7. Group XIII: Max Weigert, 4*a* Carlsbad, Berlin, W.
8. Group XIV: W. Hagelberg, 19–21 Marien street, Berlin, N. W.
9. Group XV: Wilhelm Hahne, 11 Köthener street, Berlin, W.
10. Group XVI: Dr. Hugo Kunheim, 23 Linden street, Berlin, S. W.
11. Group XVII: Mr. Hilt, 85*a* Königgrätzer street, Berlin, S. W.
12. Group XVIII: Bernhard Felisch, 14 Schaefer street, Berlin, S. O.
13. Group XIX: Von Kühlwein, 18 Friedr. Wilhelm street, Berlin, W.
14. Group XX: Rothanbücher, 7 Artillerie street, Berlin, W.
15. Group XXI: A. Kiepert, Marienfelde, near Berlin.
16. Group XXII: Max Schlesinger, 3 Koch street, Berlin, S. W.

All communications must be directed to Max Schlesinger, secretary of the exhibition, 3 Koch street, Berlin.

My report embraces in a synoptical form the objects and purposes of the exhibition, to which I have added such explanations as may convey a clear idea of the enterprise. At the present time, when everywhere great anxiety is manifested to ameliorate the condition of the working people, the project deserves attention.

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In view of the circumstance that the plan has only lately been matured, and full information was not procurable at an earlier date, doubts may arise whether the Berlin exhibition, limiting applications to the 1st of July, 1888, will facilitate the participation of manufacturers in the United States. But it suggests itself that an exhibition of this kind, as proposed to be held in Berlin, has the merit of a practical step towards solving to some extent the problem of social reform and betterment of the condition of the working classes now occupying the minds of so many of our statesmen and political economists. —BERLIN, *May 4, 1888.*

F. RAINE,
Consul-General.

PETROLEUM WELLS AND INDUSTRY OF CANADA.

The oil-producing territory of Canada is situated in the county of Lambton, Ontario, the greatest number of producing wells being in and about the thriving town of Petrolia, at which place the refineries are located. As far as yet developed the paying wells are confined to a belt of land 2 miles in width and 16 miles in length, situated about 16 miles easterly of Port Sarnia, and extending nearly parallel with St. Clair River. The oil territory is divided into two districts, viz, Petrolia and Oil Springs. The annual production of crude oil in Petrolia averages from 350,000 to 450,000 barrels and the production at Oil Springs is placed at 150,000 to 200,000 barrels, making the total annual average production of crude oil 600,000 barrels for the entire region. There are nine refineries in operation at Petrolia, which, in connection with the wells and other works incident to this industry, give employment to about three thousand men, sustaining a population of about eight thousand people.

The total quantity of refined oil for illuminating purposes manufactured annually from the crude will average 250,000 barrels.

The capital invested in the oil business is estimated at $2,750,000, as follows: Cost of the wells, exclusive of the value of the land, $1,500,000; cost of engines, derricks, and other machinery to run the wells, $300,000; storage tanks, $150,000; 60 miles of pipe line with forcing machinery, $150,000; cost of the refineries is placed at $500,000; and the cooper shops, barrels, chemicals, etc., $250,000.

METHOD OF DRILLING AND WORKING THE WELLS.

The oil producers of Canada have been obliged to develop a high degree of ingenuity and improvement upon every plan tending to lessen the cost of sinking wells and the expense of pumping the oil. They have so far succeeded that the cost of sinking wells 475 feet, the depth required, has been reduced from $3,000 to $500, including casing and pump complete, and the expense of pumping from $5 to about 25 cents each well per day. If such

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was not the case the oil industry could not be made to pay, as the great majority of wells produce only from 3 to 10 barrels daily.

As the information may possibly reach some of the localities in the Southern and Western States where oil is known to exist in small quantities it may be well to give a short description of the methods and appliances of drilling and working the wells.

The surface or drift earth is bored with a spod-auger to the rock, which ranges from 60 to 150 feet from the surface, and a 10-inch wooden tube driven down to the rock. The rock is then drilled with a 5-inch bore a depth of about 150 feet and iron casing driven down. This casing is intended to shut out the surface water, which, if admitted, would prevent the free secretion of the oil, and would, by coming into contact with sulphur deposits, produce "black water," which is very injurious to the iron tubing of the pumps, and the buoyancy imparted to the tools and cable by the 300 or 400 feet of water is avoided, and the presence of oil discovered at once by the solid tools or escaping gas. The drilling is continued until oil is struck, and the well is then ready for the pump. This is an iron tube 1½ inches in diameter and composed of various lengths, at the end of which is the working barrel resting upon a strainer or perforated iron tube to keep out obstructions. In the working barrel are two valves, one to take in and the other to let out, and the oil passing through the strainer is lifted by the pump to the surface. In early days it was necessary to provide an engine for each well, but now by the improved "jerker" system one engine will drive twenty or thirty pumps, or even more than that number. A wheel or circular horizontal table is connected with the engine by an elbow-joint in such a manner that it is made to perform a quarter revolution and return to its former position. To this wheel is attached a number of "jerkers" or poles, usually made of white ash, 2 inches square, with iron connections, by which power is conveyed to a number of pumps extending over a large area, and working them all simultaneously. By this plan wells that would not otherwise pay running expenses are operated at a profit.

Crude oil is composed of hydrocarbons of different gravities and boiling points. In distillation these hydrocarbons separate and come off seriatim, as follows: (1) Naphtha, which is too inflammable to be used as illuminating oil, and is sold chiefly to paint and rubber manufacturers, although it is also used in other industries; (2) illuminating oil; and (3) the oils too heavy for illuminating purposes. The lightest of the latter is sold to gas works as gas oil. What remains after the paraffine wax is expressed is manufactured into lubricating oil, wool oils, vaseline, hair oils, etc. What remains of the bye product is known as tar or coke and makes an excellent fuel for furnaces. On account of the fact that thus far the refiners have not been able to remove the presence of sulphur and other impurities from Canadian oil, which causes a disagreeable odor when used for illuminating purposes, large quantities of refined oil are imported from the United States into Canada, as is shown by the fact that notwithstanding the duty of 7½ cents per gallon

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about 200,000 barrels of oil from the United States are used annually in Canada, retailing at 30 to 35 cents, as against Canadian oil at 15 to 20 cents per gallon. The total quantity of petroleum and products imported to the British North American Possessions from the United States for the year ended June 30, 1887, was 4,958,657 gallons, of value of $493,512. There are 3,200 oil wells in the districts of Petrolia and Oil Springs, and the total value of the output of petroleum and products in Canada for the year 1887 is estimated at $2,000,000.

One of the largest refining works in Petrolia is the Imperial Oil Company. The works of this company extend over 45 acres, embracing stills, repair shops, tin works, cooper shops, etc., with eight steam boilers used in driving the machinery. The process of distillation is carried on in two banks or benches, one containing sixteen and the other five stills, the total capacity of which is 8,000 barrels of crude at a run. They have also a paraffine bank of six stills. Their cooper shops are furnished with machinery so that every step in the process, from the cutting of staves out of the block to the completing of the barrels, is taken through the medium of a machine. Their tin works have been fitted with a plant costing $10,000. The cans are almost entirely 5-gallon measures, and are put up two in a case, for transportation chiefly to the Northwest, British Columbia, and the lower provinces.—PORT SARNIA, ONTARIO.

J. S. FARRAR,
Consul.

TARIFF CHANGES IN GERMANY.

In a recent instruction the Prussian minister of finance has directed the attention of customs officials in the Prussian provinces to the preparations from fats and from mixtures of fats, or from mixtures of fats and oils, imported under the name or description of oleomargarine from the United States into the German Zolverein.

Considering the circumstance that such preparations, under the American act of August 2, 1886, shall bear such name, if they are manufactured from substances similar to butter, or if such preparations are intended to be sold as butter or butter substitutes, shall, under the provisions of the German law, in most cases, not be regarded as oleomargarine in the meaning of No. 26 h. of the German tariff (more or less fluid fat obtained by pressing tallow), but shall come under the conception of margarine, which, according to item 25 f. of same tariff, is subject to a duty of 20 marks per 100 kilograms (being preparations similar to milk butter, of which the contents of fat is not exclusively derived from milk).

The item No. 26 h. of the German tariff reads as follows in translation: "Lard from hogs and geese, and other greases similar to lard, such as oleomargarine (a mixture of tallowy grease with oil), beef marrow, per kilogram, $2.38, and item No. 25 f. of same tariff, butter, also artificial, 20 marks ($4.78)."—BERLIN, *April 4, 1888.*

F. RAINE,
Consul-General.

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IMPORTS OF LIVE STOCK INTO GREAT BRITAIN.

The following table shows the imports of live stock into Great Britain from foreign countries and from Ireland during the past five years:

Year.	Imports from foreign countries.			Imports from Ireland.		
	Cattle.	Sheep.	Pigs.	Cattle.	Sheep.	Pigs.
1883	472,839	1,113,317	38,726	556,867	460,729	461,017
1884	424,664	942,688	26,561	715,843	533,285	456,678
1885	372,731	752,309	16,494	640,470	629,090	398,564
1886	319,538	1,035,548	21,394	717,389	734,213	421,285
1887	298,888	978,834	21,976	669,253	548,568	480,920

From the above it is seen that a very large proportion of England's live stock supplies are obtained from Ireland. It is noticeable, too, that while the imports of cattle from foreign countries have been steadily declining, those from Ireland, although variable, have remained large throughout, the total for 1887 being above the totals for 1883 and 1885, but lower than for 1884 and 1886. Imports of sheep and pigs from Ireland are also large.

TRADE OF SOUTH AMERICA.

The unusual and energetic efforts on the part of Spain to recover the trade of her palmy days with South America, as also with the West Indies, Mexico, etc., are attracting great attention here, and are much commented on in mercantile and diplomatic circles. Not less so are the efforts, still more energetic and successful, on the part of Germany to secure her share of the $700,000,000 of annual commerce (exports and imports) of the twenty "American Indias." In connection with these efforts comes the query, why is the United States, especially so far as South America proper is concerned, so lacking in energy?

Owing to the continuous interest manifested in regard to this matter, as well as to the immense amount of annual commerce, and to the keen competition and rivalry exhibited in diverting this trade to their respective shores by England, France, Germany, Spain, and Italy, and the amounts of money invested by them in the shape of subsidies, bounties, etc., by preserving the same, I have been led to give the subject my earnest study and reflection.

AMOUNT AND NATURE OF THE TRADE.

First. What does this trade amount to annually; in what does it consist, and what nations command it?

It amounts annually (exports and imports) in round numbers to $700,000,000. The countries south of the United States, consisting of the Empire of Brazil, four European colonies, and fifteen republics, consist of over 40,000,000 people, and have an aggregate area of over 8,500,000 square miles; a population almost equal, and an area double, that of the United States. They are with few exceptions (Chili, the Argentine Confederation, Uruguay, a part of Paraguay, and the lower southern part of Brazil) within the tropical region, the tropic of Capricorn passing through San Paulo, which renders them in climate, production, supply, and demand, the reverse

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of the United States. Their principal products are sugar, coffee, cocoa, fibrous plants, hardwoods, cochineal, dye-stuffs, and immense herds and flocks, furnishing countless hides and quantities of wool, all of which are greatly needed by the United States, and in return for which they should receive the innumerable articles manufactured from cotton, iron, and other hard metals, agricultural and mechanical implements, shoes, hats, watches, and, as they have no factories of their own worth the name, the countless articles formed and fashioned in the United States by the skill and invention peculiar to that country, and also wheat, corn, flour, bacon, tobacco, kerosene, oil, etc.

This commercial reciprocity of trade, made so by the laws of nature, and so much needed between these tropical or quasi-tropical countries of South America, Mexico, and Central America, and the United States should, it seems, flow naturally between the two countries, and be monopolized by the latter. On the contrary, strange to say, the reverse appears; commercial statistics in fact showing that only about one-fifth of the annual trade of these countries (as stated above, $700,000,000) is controlled by the United States—indeed, of that which is important, the supplied imports to these countries, amounting annually to over $350,000,000, the United States supplies but little over one-seventh.

The fact as regards the numerous West India Islands, many of them almost within sight of portions of the Union, such as Cuba, Port Rico, the Bahamas, Jamaica, Barbadoes, St. Thomas, Martinique, etc., with an area of over 100,000 square miles and an aggregate population of over four millions, the same statistics demonstrate that, although almost at her doors, the United States furnishes less than a third of the one hundred and twenty millions of annual imports.

IMPORTS IN DETAIL.

Now of what, in detail, does this trade consist, especially the imports? The statistics of Spain alone, since her late effort to increase her trade, as above stated, prove that in many manufactured articles, supplied in this South American commerce, the variety is astounding, the principal (in 1886–'87) being as follows: Agricultural and mechanical implements of all sorts, plows, hoes, reapers, thrashers, rakes, cars, wheels, axes, spades, shovels, etc., going to make up the interminable list of such implements and machines, and also the still more innumerable manufactures of cotton, woolen, and linen goods. Also arms, alcohol, apples, air guns, asbestos, axle grease, asphalt, acids, ash, art supplies, ammonia, buttons, billiard cloths, brass, bottles, butter, blacking, bran, beef, bananas, bells, blocks, bitters, brooms, bags, books, bacon, brushes, beans, bellows, bread, belting, beer, bicycles, brimstone, batteries, baby carriages, burial cases, britannia ware, bronzes, bustles, billiard tables, barks, borax, bath tubs, beeswax, bungs, candles, cinnamon, castors, cloves, chromos, corn-meal, celluloid goods, cassia, crayons, corn starch, cigars, cigarettes, cages, cotton-seed hulls, china, corn plant, carriages, carriage materials, collars, corsets,

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clothing, caustic soda, clay, caustic potash, candy-cement, cod sounds, candy, corn, car materials, carbons, corks, canary seed, coloring, cuspadores, cutlery, cocoa, clocks, cattle, cane chairs, cod-fish, canned goods, cucumber seed, crucibles, cheese, chalk, cyclestyles, cigar-maker's boards, and all sorts of carriages, dental engines, druggists' ware, dates, dried fruits, dental instruments, drugs, dried fish, domestics, dry goods, eyeglasses, extract logwood, engines, essential oils, empty shells, emery cloth, enameled duck, electric-light material, fancy cards, fans, flint, feathers, feed, felt, fishing hooks and lines, frames, furniture, fire-arms, flour, feather dusters, fish, figs, fish-plates, fuse, fire crackers, fruit presses, fish oil, furs, files, gas fixtures, grindstone fixtures, guns, glass tubes, glass, glasses, gum senegal, gasoline, grindstones, groceries, glue, garlic, grease, hemp, hektographs, horns, hair, heading harness, handles, household goods, hides, hoops, hay, handcarts, hams, hardware, hats, hops, hose, hoops, igniting tapes, india-rubber, incubators, iron, iron bars, iron tubes, iron manufactures, ice-cream freezers, iron safes, ink, japanned ware, jute, jewelry, lamps and lamp fixtures, etc., leather, leather belting, leather fixings and manufactures, lightning rods, lubricating oil, lathes, lead pencils, leather bags, locomotives, labels, lard, lumber, locomotive springs, linseed oil, lime, machinery, manufactured zinc, matting, minerals, match splints, mats, maizena, mattresses, manufactured wood, marble dust, matches, music, manufactured hair, manufactured tobacco, Mexican silver, machine oil, mince meat, mast hoops, molds, metallic shells, mineral waters, needles, newspapers, notions, nuts, nails, organs, oak, oakum, oil-cake, oats, oatmeal, onions, olive oil, oars, organettes, olives, paper, paper hangings, etc., printing type and material, patent leather, post-office boxes, pop-corn, paraffine oil, porcelain ware, pickles, pianos, pins, pimento, percussion caps, pork, peas, pumps, pumice-stone, pictures, pickled fish, perfumery, pitch, pencils, pepper, potatoes, paint, photographic material, paper, petroleum, plaster, plated ware, rice, resin, raisins, rivets, railroad spikes, refrigerators, resin oil, railroad fixtures, rubber belts, revolvers, railroad cars, shafts, spikes, stove polish, sausages, staples, syringes, saw teeth, smoothing boards, sarsaparilla, soap grease, shot, shell-primers, salves, sand, steel rails, saws, sickles, straw goods, scientific instruments, sponges, spirits turpentine, strawboard, starch, soap, paste, scissors, sewing-machines, snuff, silex, saddlery, specie, scales, sugar, sand-paper, sperm oil, silver ware, shoes, shooks and heads, slates, stationery, shawls, straps, sulphur, sheet iron, twine, tin, tents, tags, tiles, telephones, tongues, tarpaulins, tin-foil, toilet ware, tea, toys, trunks, telegraph material, tools, tallow, trucks, tar, tobacco, toothpicks, tacks, tinware, thread, tallow scraps, toilet sets, type-writers, valves, velocipedes, vegetables, varnish, vermicelli, vermouth, wood, wheat, window glass, wood-ware, wood manufactures, whips, wine, wheels, walnut, watches, wheelbarrows, white wood, water-wheels, water-colors, wall-paper, whiting, wooden pails, wood sticks, wire, wire screws, windmills, wax, wads, yellow ocher, yarn, yeast, zinc.

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If the commerce of a third or fourth rate commercial country like Spain discloses such a list of articles, how countless must they be when regard is had to that of England, France, Germany, the United States, etc.?

TRADE CONDITIONS.

It must be remembered also there is not much need of encouraging the commerce, that in South America there are scarcely any factories, and that the many botanical stuffs, drugs, dyes, minerals, etc., that are shipped therefrom to the United States come back manufactured, and bring a higher price here than in the "States." Quinine, for instance, properly prepared for use in the United States, though indigenous to these countries, sells for from two to three times as much here as there. The same may be said as to wool and hides sent to the Union and returned here in the shape of shoes, harness, carpets, etc. We must not look alone to the articles in their natural state which are produced and exported from one country to another in order to judge correctly of the importance and extent of a reciprocal trade, but to the fact that many of such articles are returned manufactured in such way as to find ready sale in the very land from which they were exported.

It must also be remembered that these countries, many of them at least, are progressing rapidly in population and resources, and, as a consequence thereof, their aggregate annual trade is becoming larger and larger. This trade and its importance is best evidenced by the continuous and energetic efforts to monopolize it by the great commercial nations of the world, and especially by the subsidies and bounties paid by England, France, Germany, Italy, and Spain to get the lion's share thereof.

Of this immense annual trade, aggregating over $700,000,000 (some experienced writers say from $955,000,000 to $1,000,000,000), the United States controls less than one-sixth. And of the aggregate annual imports ($320,000,000) she furnishes scarcely one-eighth.

The commerce of these countries more in detail is about as follows:

Brazil, $220,000,000; Mexico, $58,000,000; Central American States, $25,000,000; the European colonies, $33,000,000; and the South American Republics (nine in number) $351,000,000.

The exports (excluding the West Indies) aggregate in round numbers $450,000,000. Of this Brazil exports about $120,000,000; Chili, $60,000,000; the Argentine Republic, $70,000,000; and Uruguay, $23,000,000, by far the largest part thereof. The imports amount annually to about $375,000,000, which are taken by the above-named states about in the ratio with the exports, as above stated. Of the whole imports and exports the United States controls less than a tenth.

A striking illustration of the way in which this trade goes is found in the Argentine Confederation, where, of the whole, Great Britain takes 22.4, France 23.8, Belgium 14.7, Germany 9.5, and the United States only

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about 6.7 per cent. Apply this to Uruguay, for 1884, and the following proportion will be found:

	Imports.		Exports.
England	27.71	England	21.04
France	18.44	France	14.82
Spain	9.89	Belgium	15.47
Germany	9.56	United States	7.21
United States	6.41		

In Chili and Peru the comparison is still less favorable, and when it is considered that even of this beggarly modicum of United States trade almost the whole is carried in foreign bottoms, the comparison becomes mortifying. Take, for instance, the arrivals and departures of steamers and vessels at and from this Republic (Uruguay) in 1883, as follows:

Arrivals and departures of steamers and sailing-vessels, number, 2,227; tons, 2,102,415, of which the principal maritime nations had as below:

Steamers.	No.	Tons.	Sailing-vessels.	No.	Tons.
English	407	640,704	English	299	204,294
French	231	401,867	French	23	9,579
German	209	287,916	German	87	16,477
Italian	90	114,000	Italian	233	122,121
United States	1	78	United States	41	23,312

From which it appears that while 407 English, 231 French, 209 German, and 90 Italian steamers displayed their flags in Uruguayan waters during the year, the United States colors floated from but one, and upon examining the maritime statistics for that year, although the arrival of that single steamer appears, its departure does not. And yet in that year the export and import trade between the two countries amounted to $3,360,795. In 1885, two years later, the trade had almost doubled, the total for that year being $6,415,698, and still not a single United States steamer appeared. The whole trade, with the exception of an insignificant portion brought in United States sailing-vessels, having found its way in foreign bottoms. A like state of affairs exists in regard to the Argentine Republic, Chili, Bolivia, Peru, Ecuador, and Paraguay.

It is evident that this South American trade is worth having and deserves a serious struggle, and, as above intimated, the best evidence of its value is shown by the continued and energetic efforts on the part of the great maritime powers to control it. It is also evident that the United States, if she will make a serious effort, exhibit half the energy, and invest one-fourth the money that these countries do, can secure the better part thereof. She controlled it, and in her own bottoms, before the war, and can, therefore, control it again.

PAST CONDITIONS.

In 1856 United States vessels conveyed (exports and imports) from and to her ports, in value, $483,368,274, and foreign vessels only $159,336,176. In 1886, thirty years later, the tables were completely turned, and foreign

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vessels conveyed a value of $1,139,636,971, and United States bottoms, $227,947,500.

COMPETING FOR THE ARGENTINE TRADE.

England, France, Germany, and Spain have found that trained, intelligent, and energetic consuls are required at every port; that long credit at a small rate of interest is necessary, and that great pains in the packing and dispatching of goods, prompt dealings, reliable exactness in business, a proper catering to the habits and tastes of the purchasers, great energy, and sleepless vigilance, together with commercial treaties with all states, and an abolition, if possible, of all duties upon the raw productions of South America are likewise required. A strict conformity to these requirements has enabled Germany within the past five years to compete successfully, in fact to supersede in many instances, her able and influential rivals in a commerce which, up to that time, they had monpolized, especially England.

The following extract, from "Kuhlow's German Trade Review," will better explain our meaning:

> The export of goods in the textile industry to South America, and especially to Brazil, shows a continual expansion. Until a few years ago French and English manufactures predominated in the southern states, but gradually German goods obtained an entrance into the Brazilian market, and now they have so far taken possession of the field that German lines are everywhere preferred and sold. Indeed, the demand for German goods is almost as large in South America as in North, a fact which is not as yet understood at home, since a large portion of the German exports pass through English and French hands.
>
> In all articles which are exported from Germany to South America, only the cheaper qualities sell, France holding the first place in finer qualities. The German trade has not arrived at that stage, at least in the opinion of large importers who carry on the South American business, at which it can attain the business and nicety which the French goods exhibit. The favorable picture which the German export trade presents, in view of the competition that has to be contended with, is a consequence of the great pains taken in the dispatch of goods, then cheapness, the business exactness of German manufacturers, the gauging of the tastes of the consumers, and the energy of Hamburg commission houses and South American importers.

The English consul at Valparaiso says, in substance, that a complaint is made there that English manufacturers do not study the changes in the requirements that the Germans do, hence even of imports into Chili of woolen more than one-half (60 per cent.) come from Germany.

Mr. Bennett, reporting as to the trade of Rio Grande do Sul, Brazil, states substantially that last year the German imports into that large province of woolen goods were five times larger than those of England, and of linens more than twice as much. A like report comes from Santos in regard to the rapid increase of this German trade, stating among other things the significant fact that even the cutlery and steel-ware trade of England is in danger from German competition. From Costa Rica come similar reports, announcing that "Germany is fast becoming a competitor in these markets in producing wares, if not superior, at least as good and as cheap as those in Birmingham."

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Since 1881 Germany has more than doubled her trade with Uruguay and Paraguay. In fact her exports from Uruguay, in 1881, amounted to only $69,826, and in 1884 to $834,155, an increase of twelvefold in four years.

The reports above alluded to concurred in stating that these successful efforts on the part of Germany are due, principally, to superior energy, superior training for this particular business, superior packing, superior and more regular dispatch, promptness and exactness in business, regularity in business matters, long credit and small interest, small but quick profits, cheapness of goods, fraudulent marks and imitations, catering in a remarkable manner to the tastes of customers, regularly established commercial houses, superiority in commercial education, trading qualifications, and knowledge of foreign languages. In Spain the German ascendency is still more conspicuous. The British press, generally, deplores this remarkable revolution in trade. The Times, commenting thereupon, closes as follows:

On the whole it appears that the British commercial position in South and Central America is being seriously threatened by German competition, not because German wares are better, but because they are pushed with more energy, judgment, and commercial knowledge.

The journals of France and Spain are also greatly concerned as to this German ascendency. On the contrary, none of the English, French, German, or Spanish papers seem to have the least fear of any interference with trade or commerce by the United States. Indeed, their articles in this regard are tinged with a mixture of ridicule and pity; almost all of them concluded by stating, in substance, that the United States are not to be dreaded so long as they merely look forward to being able, within a few years, to control the entire Spanish-American trade provided the proper means be adopted, but does not suggest positively what those means are or when the adoption shall be decreed.

"Our enterprising American cousins" are waking up to the great and increasing Spanish-American trade. They are figuring over the facts that nearly all of these countries are Republics; that they are contiguous, on the same hemisphere, and considerably in love with the great, model, mother Republic; the opening of the Panama Canal and Nicaragua route; New Orleans Exposition; international fairs; Centennial of the Constitution; four hundredth anniversary of the discovery of America; invitations to all Spanish-American states to meet in Washington or New York; South American commissions, etc., as if such figuring by some novel Yankee invention in arithmetical rules would transfer this immense commerce to American shores.

The change from wooden to iron and steel ships cut her out of a large part of the carrying trade, which no fiscal regulations or lack of regulations can possibly restore. The Buenos Ayres Standard has the most sensible article that I have seen as to this matter. The editorial says, among other things:

Papers have printed tons of paper about this matter; Congress has created commissions who have gone junketing about the world with no end of fuss and feathers, making a loud

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noise, and doing nothing. * * * It seems to be the opinion of Americans that commercial relations are to be created by a series of resolutions and the visits of an itinerating commission, and that such old-fashioned ways as the investment of capital and the doing of work are not necessary in the case of American enterprise. * * * No one need quarrel with the Americans about this, for they have every right to select the field of their operations. * * * So long as Europe comes here with its millions and Americans come here with itinerating commission, the business supremacy of Europe in this country will be seen.

INTERNATIONAL RAILWAY.

Fortunately the United States is not confined to the ocean in order to recover this immense South American commerce. An international railway would not only control but monopolize it, and in such way as to defy all future competition.

Is it feasible? When I began to study this question, three years ago, I was inclined to regard it as somewhat visionary. A close scrutiny, a more intimate acquaintance with the people and the topography of the country, a constant intercourse and conversation with able and distinguished geologists and topographical engineers here, some of whom have been over the ground more than once, and, above all, the fact that within these three years railroads have been actually built and routes surveyed for at least one-third of the distance between Buenos Ayres and Bogota lead me to believe that the great international highway (railroad) will be completed much sooner than has been anticipated. This, I think, can be clearly demonstrated by a detailed description of the distance and routes between Buenos Ayres and Bogota, or Cartagena, or Panama, and especially of the railways already built and surveyed along the line; and it will, I have little doubt, astonish many to know, as above stated, that within only three years one-third of the whole line has been built, or is under survey and construction; in fact that there are two lines so built and under construction, and concessions granted for at least two more, and these railways, together with shorter ones already in operation in Peru, Ecuador, and Bolivia, with which connections might be easily made, would make the distance between the two cities, Buenos Ayres and Bogota, to be filled up only about 2,000 miles. It is by no means so gigantic an undertaking as the great Pacific road, connecting the Atlantic and Pacific, over 3,000 miles. I allude to this to show how distance, time, obstacles, visionary impediments, sneer, and ridicule vanish before concentrated determination, energy, capital, and skill.

Now, why can not this proposed international railway, one-third, or at least one-fourth shorter than the Pacific, above alluded to, be built, and built at once (five or six years) in the same way and by the same means? The answer is apparent, and is evident from the very fact that, within the short space of three years, one-third of it has already been built, or built and being built, and that over the worst part, the "Gran Chaco," between the Argentine Republic and Bolivia.

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Every possible encouragement is and will be given for its construction by the states through which it is to pass, not only in the way of concessions for railway purposes, but by a guaranty of from 5 to 7 per cent. per annum interest on all amounts invested in construction, as also extensive tracts of land on both sides of the road; and, as the line would run through what has been always regarded as the richest auriferous regions of the world, to say nothing of its other mineral and botanical wealth, such tracts of land would, in all probability, prove invaluable.

To assert these facts is a matter of great ease. Let us prove them. I have before me a railroad map of South America, prepared with great care, and at considerable expense, from which the roads already built, as also those in process of construction, etc., between Buenos Ayres and Bogota, can be distinctly traced, the distances ascertained, etc.

I will describe in detail three lines now projected, and in great part constructed, between Buenos Ayres and the Bolivian frontier, a distance of about 1,100 miles, being one-third of the whole line between that city and Bogota. First, the railway from Buenos Ayres to Rosario, 186 miles; Rosario to Cordoba, 246 miles; Cordoba to Tucuman, 341 miles; Tucuman to Jujuy, 220 miles; total, 993 miles. The above is now built and in operation. Then from Jujuy, almost on the Bolivian frontier, to La Paz, the capital of Bolivia, 500 miles; from La Paz to Santa Rosa, Bolivia, built, 220 miles; Santa Rosa to Cuzco, not built, 190 miles; Cuzco to Santa Rosa, Ecuador, not built, 880 miles; Santa Rosa to Hiradot, Colombia, not built, 450 miles; Hiradot to Bogota, built, 140 miles; total, 2,430 miles. This line, it will be seen, gives 993 miles in operation from Buenos Ayres to Jujuy, and 2,430 miles from Jujuy to Bogota, of which 360 miles are already constructed, leaving to be built 2,070 miles. The route heads all the rivers, principally tributaries to the Amazon.

Second. Buenos Ayres to Santa Rosa, Argentine Republic, built, 450 miles; Santa Rosa to Posadas, surveyed and projected, not built, 220 miles; Posadas to Villa Rica, Paraguay, surveyed and projected, not built, 175 miles; Villa Rica to Asuncion, Paraguay, partly built and to be finished by next spring, 175 miles; Asuncion to Sucre, Bolivia, projected and concession granted, 700 miles; Sucre to La Paz, Bolivia, 220 miles; total, 1,940 miles. From La Paz to Bogota, as indicated in the first route, 1,880 miles, of which there are in operation about 910 miles; to this may be added 395 miles between Santa Rosa and Posadas and Posadas and Villa Rica, Paraguay, so surveyed and projected as to be sure to be built within two years and may be assumed to be built; making a total of 2,515 miles.

Third. A route from, at, or near Asuncion, Paraguay, as follows: Along the Pelcomayo River, across the Gran Chaco, from near Asuncion to Salinas, near the Bolivian frontier, 620 miles; Salinas to Potosi, Bolivia, 540 miles; Potosi to La Paz, 385 miles, not built; La Paz to Arequipa, Peru, built, 380 miles; Arequipa to Bogota, about the same distance as from La Paz to Bolivia, 1,880 miles; Asuncion to Buenos Ayres, so surveyed and projected as to be

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presumed to be built, in fact the greater part built, 1,020 miles; from which may be reasonably deducted the distance from Buenos Ayres to Ascuncion, 1,020 miles, and from La Paz to Arequipa, built, 480 miles, leaving a total of 3,225 miles.

This latter route has been projected by the great Buenos Ayres railroad kings, the Messrs. Clark, though only to Arequipa, and is called "The South American Railway."

The Buenos Ayres Standard, alluding to this route, says, among other things:

Messrs. Clark's great enterprise, to which we alluded in our last issue, is of continental magnitude, fit to rank beside the Union Pacific Railway of the United States, or the Canadian Pacific, recently completed. Engineering and British capital have done wonders in the last twenty years, and the programme of such triumphs is by no means exhausted. The South American Railway will probably connect Buenos Ayres and Lima before the close of the nineteenth century, although the idea of a transcontinental line 2,000 miles long is so bold an undertaking as to appear bordering on temerity.

When the late Gervais Pesadas, in 1862, proposed a railway to Mendoza, he was considered more or less insane. When the Messrs. Clark went still further and obtained a concession for a line from Buenos Ayres to Valparaiso it was said that no capitalist would entertain such a project, yet the locomotive is now steadily making its way up the Andine slope, and will shortly reach the Inca's Bridge. In like manner, when two haberdashers and a grocer of San Francisco started the construction of a railway to connect that city with New York they had to struggle for a time with much incredulity and even ridicule. The project now before us is comparatively no vaster than a railway to Bahia Blanca or Mendoza seemed a few years ago. It is simply a question of railway iron and cost.

The whole line from Buenos Ayres to Valparaiso will shortly be thrown open to trade. This line, when finished, will revolutionize trade, and divert most of that of the Pacific coast of Chili and Bolivia to Buenos Ayres, instead of around the cape, the distance being much less and the freights much cheaper. It will also greatly facilitate travel, the mail, specie, and valuable packages of merchandise to and from Australia, putting Melbourne and London within a voyage of thirty-seven hours; in fact, connecting the Pacific and Atlantic between Valparaiso and Buenos Ayres, the time required being only forty hours.

This connection and communication has given rise to a fourth international projected route, as follows: Buenos Ayres to San Felipe, in the Argentine Republic (built), 660 miles; San Felipe to Coquimbo (partly built), 250 miles, and from Coquimbo to Lima, 1,320 miles; Lima to Bogota, 1,100 miles; total, 3,330 miles. Of this route—Coquimbo to Bogota—parts have been built, notably the line from Yca to Chaucay, passing Lima, about 300 miles; other short connections, approximating 250 miles—a total of 550 miles; deducting 660 miles already built, there is still to be constructed 2,120 miles.

This route, throughout its entire length, runs along the Andes, until it reaches Quito, or Guayaquil, in Ecuador, whence it turns northeast towards Bogota. It is said to be the richest mineral route of the world, including the regions of gold and silver originally discovered by the Spaniards.

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A fifth route has just been developed, and a concession granted therefor, called the International Argentine and Bolivian Railway, to run from Buenos Ayres to some point near Corrientes, thence to Oran, near the Bolivian frontier. This route presumes that the railway connections between Buenos Ayres and Corrientes will soon be completed, a distance of about 700 miles; Corientes to Oran, 465 miles; Oran to Bolivian frontier, 96 miles; Bolivian frontier to La Paz, 550 miles; La Paz to Bogota, 1,880 miles; total, 3,691 miles; deducting 700 miles presumed to be built from Buenos Ayres to Corrientes, and about 365 miles of connections between La Paz and Bogota already built, leaves still to be constructed 2,626 miles.

It will be observed that these five routes have been treated as international routes between Buenos Ayres and Bogota. By this we do not mean to say that they are intended by the projectors as such, but are described because they all tend in that direction, and, as far as they go, will, or might be, a part of that great international highway, thus leaving so much the less to be constructed.

It will also be seen that of the five proposed routes between the two cities there remains to be built as follows: Route from Buenos Ayres via Jujuy and La Paz, 2,070 miles; Buenos Ayres via Asuncion (Paraguay), La Paz, Sucre, etc., 2,515 miles; Buenos Ayres, connecting with the Clark South American Railway near Asuncion, across the Gran Chaco, to Salinas, Sucre, La Paz, etc., 3,225 miles; Buenos Ayres to San Felipe, thence along the Andes to Coquimbo, Lima, etc., 2,120 miles; Buenos Ayres via Corrientes, Oran, La Paz., etc., 2,626 miles. There are other routes projected, for which concessions have been granted, all tending towards Bogota; but the five already described are the principal.

As above stated, every encouragement, both material and moral, will be given to the construction of this international road by the different republics through which it will pass. The material aid, which is the most important, may be approximated by the general rule in this regard adopted by the Argentine Republic and other South American states—that is, a guaranty of from 5 to 7 per cent. per annum on all sums invested in construction, and a most liberal grant of lands along the road.

The line throughout its entire length would pass through countries teeming with the most valuable articles of commerce, such as coffee, cacao, quinine, sugar, mandioca, vanilla, tobacco, botanical, medical, and dye stuffs, and timber and wood of the most valuable sorts. Among the latter may be mentioned the "Quelracho Colorado," which is heavier than the heaviest coal, and is so little affected by water or atmospheric changes as to be pre-eminently fit for railway sleepers. It is also used for tanning and dyeing, and is quoted in Marseilles and Havre at 130 to 140 francs per ton. Others are the "Urunday," which is said to never rot, and the "Celie," which the South American Journal in a late article says is so valuable that it "may be made to yield as much value as a good gold mine."

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From time immemorial these countries have been regarded as the land of gold, silver, and other precious metals, and also copper, lead, bismuth, salt, nitrate of soda, magnesia, etc.

The hitherto unexplored regions of Bolivia were supposed to be especially rich in deposits of gold and silver, and recent discoveries show that the fabled land of the followers of Cabot, supposed to be somewhere in Bolivia, where "mighty griffins" watched like "incarnate death" over "caves of gold and diamonds," has not been so grossly exaggerated, but that, stripped of all poetry, immense mines and deposits of the precious metals do exist in that country, though too remote from highway and habitation to be explored or worked.

In the report of the Director of the Mint for 1884, it is stated, upon information from the United States minister to Bolivia, that Chili, Bolivia, and Peru, under advantageous circumstances, would "add 50,000,000 ounces of silver to the world's use annually." "The basin of the Cerro Pasco, in Peru, of two miles in length by one in width, is so prolific of silver that, without going deeper than 280 feet, over $200,000,000 have been extracted." "Every spade that turns the clod reveals the silver." Indeed, the South American Journal and kindred papers are filled with accounts of the mines and deposits of the precious metals from the Argentine Republic to Colombia; and when it is remembered that few, if any, of these republics have mints, but export their gold to be coined, it can be easily imagined what this would amount to in the way of freight.

The great diamond fields of the world are also along these routes or in proximity thereto.

A correspondent in the South American Journal of October 1, 1887, states that the country "around Angol, Chili, is likely to prove a new El Dorado. I have many nuggets in my possession weighing from 15 to 18 grams. Large nuggets are of course rarer, but by no means scarce. A few weeks ago one of 580 grams was sold to a Concepcion house. The largest found contained over 5 pounds avoirdupois of metal."

Even Colombia, not heretofore regarded as so abundant in these metals as Peru, Bolivia, etc., seems, from recent accounts, to be rich in mines and deposits. Mr. Charles Dunlop, writing in this regard in August last, says, among other things, that "the immense value and extent of the mineral resources of Colombia are not a mere matter of conjecture; their reality has long since been established on the basis of experience. * * * Of all fields for mining enterprise there are few equal to this hitherto little known region."

Independent of gold and silver, diamond and emerald, however, the legitimate internal commerce of the states through which this international road would directly pass, and the adjacent country drained thereby, amounts, under the unfavorable conditions now attached to it, to over $600,000,000 per annum. What would it not amount to when stimulated and developed by this proposed international line?

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This may be approximated by looking at the commerce of the United States since 1790. The net imports of that year were $22,500,000; 1830, $75,000,000; 1880, $740,000,000; exports, 1790, $20,000,000; 1830, $60,000,000; 1880, $745,000,000; showing an increase in fifty years in the foreign commerce of about elevenfold. The comparison will be better, however, by reference to the internal commerce of the United States, as this proposed international road would develop principally the internal trade of South America. Mr. Carnegie says:

> The coasting tonnage of the Union alone more than doubles the entire foreign traffic, 34,000,000 as against 16,000,000 tons, while the domestic commerce by rail is reported at 291,000,000 tons, and by steamers, lakes, and rivers at 25,500,000 tons. Thus it appears that our internal commerce, of which so little is heard, is more than twenty times greater than the foreign trade.

And further, on another page, he asserts:

> That this internal commerce of the United States exceeds the entire foreign commerce of Great Britain and Ireland, France, Germany, Russia, Holland, France, Austria, and Belgium combined. * * * The Pennsylvania Railroad system alone transports more tonnage than all Britain's merchant ships.

At present there is scarcely any market for this great internal commerce of South America. Most of the traffic of Bolivia, it is said, is carried from 300 to 500 miles by mules, while in Colombia, actually washed by the Pacific and the Caribbean, freights from Bucuramango to the Magdalena River cost $80 per ton by road and $82 by river, while the Pennsylvania Railroad is charging less than a cent a ton per mile. Now these South American countries are said to have a population of over 40,000,000, and an area of almost 8,000,000 square miles—a population almost equal to that of the United States, and an area more than double.

What, it is asked, would its internal commerce not amount to stimulated, fostered, and perfected by this international road? Why, by degrees, should it not approach at least the gigantic proportions of that of the United States, 291,000,000 tons by rail alone, as stated by Mr. Carnegie?

THE PRESENT OUTLOOK.

1. Within the last three or four years about one-third of the line has been built, that is, railways with which the international road could connect.

2. Concessions are being annually granted in the different republics through which it would pass for the construction of other railways that might form connecting links.

3. These concessions are generally of the most liberal nature, such as a guaranty of 5, 6, and 7 per cent. per annum upon all sums invested in construction, and also liberal grants of land on both sides of the route, exemption from taxation, importation of all needed railway supplies free of duty, etc. For instance, the late concession granted by Paraguay to General Osborn (ex-United States minister to the Argentine Republic) for a railway from the right bank of the Paraguay River across the Chaco to the Bolivian frontier, concedes, among other things, along the whole length of the line

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60 meters wide of land shall be delivered for the line, and also full proprietary rights gratis of alternate lots of land on each side of the line, each lot to be of 10 kilometers fronting the line and 20 kilometers in depth; exemption from taxation for forty years after the completion of the line; freedom of employés from military service, etc.

4. The republics along the whole line are anxious for the construction of railways, and are offering concessions so liberal that they must attract capital.

5. The liberality of these concessions is apparent from the fact that they are generally sold by the original concessionaires at greatly advanced prices. As an example of this, the papers state that Dr. Stewart has been offered for his late concession of a railway, from Posadas to Villa Rica, in Paraguay, $100,000.

6. European capital and immigration are steadily flowing to many of these countries, and will, in all probability, continue to do so.

7. The wish to build the whole line is general, and the feasibility admitted. Indeed, the probability of its construction is occupying the public mind more and more every year.

8. The immense tracts of land granted to the concessionaires have made large fortunes.

9. In some of these republics rival capitalists are striving for these concessions.

Many other reasons might be stated, if necessary, and time and space at our command. Indeed, it is par excellence the age of railways and railway investments, especially in South America. While writing I see it stated in the South American Journal of last month, that a "Registration company" has been formed in London for the construction of a line in Colombia from Santa Marca to Banco, on the Magdalena River, with a capital of £600,000; and also a line, in the same Republic, from Santander to Bucuramango.

There are over twenty railways in operation in the Argentine Republic, and concessions granted for several more. The construction cost of those now in operation is estimated at a little over $40,000 per mile. Taking this as a fair average, and estimating the international line from Buenos Ayres to Bogota to be 3,600 miles, and deducting the first-class railway already in operation between Buenos Ayres and Jujuy, 993 miles, and which is the most direct route to Bogota, there would be left to be built, without deducting for the other links above referred to in describing this route, 2,610 miles, at a cost of $40,000 per mile, or $104,400,000. — MONTEVIDEO, *January 11, 1888.*

JOHN E. BACON.

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THE MOSQUITO RESERVATION.

The interest in the development of the banana industry in the reservation manifested by the Government and the people of Nicaragua continues to be displayed not only within the limits of the reserve, but in lands adjacent to it and in the lands on the Atlantic coast in general. Companies have been organized in different parts of the interior, having for their fields of operation lands in the reserve and in lands contiguous to it along the river Escondido, Siquia, Mico, and Great River and its branches.

Every river steamer brings to this port parties, large or small, of individual purchasers of banana lands, and laborers destined to Bluefields, from which port they are distributed along the rivers above named.

This almost constant travel is adding very materially to the receipts of the Nicaraguan Mail Steam Navigation Company, and making business for and increasing the number of the little coasting craft plying between this port and Bluefields.

Two of the commissioners sent by the Government to explore that part of Nicaragua watered by the rivers Coco, Grand, and Escondido have made reports full of interesting descriptions of the existence of the great natural resources which have been for years comparatively unknown to any except a few tribes of Indians and a few whites, who have occupied the lands and led a life free from the restraining influences of any form of government.

The course of these rivers, running generally in a southeasterly direction and emptying into the Caribbean Sea, while not found to be navigable throughout their entire length, present such natural facilities that they could be made serviceable for many miles of transportation between the Atlantic coast and the interior of Nicaragua.

Tracts of land were found which were suitable for the cultivation of coffee, cocoa, bananas, and sugar-cane, and all the fruits which are produced in these countries. Interspersed all through these wilds were found forests of woods which could be successfully economized in manufactures, and, of course, be made profitable articles of export. These lands are in that part of Nicaragua which for years has been described in the histories and on the maps of the country as the uncivilized part of the Republic of Nicaragua.

Commissioner Francisco Ruiz, commencing on the Mico (an affluent of the Escondido, or Bluefields, which at that part and for some miles from its source in the mountains about La Libertad, in the department of Chontales, still retains the ancient name of Mico, a name formerly given to the entire river from its source to the sea), passed down the Siquia, the Rama branch, the Escondido, the Bluefields, to Bluefields City.

From that port he returned to the Nicaraguan Government station at the mouth of the Rama, where he remained apparently still in the service of the Government of Nicaragua.

The making of new plantations, and mahogany cutting along the Rama, Siquia, and Mico will increase the population which is now scattered along

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those rivers. There, I am informed, the Nicaraguan Government intends to make a town and locate a custom-house.

Many of the sea-going fruit steamers that come to Bluefields from New York, Baltimore, Philadelphia, and New Orleans go to the plantations 75 miles up the Rama and Siquia, and the smaller launches ascend the Mico. This has been going on for some time without objection from the authorities of Nicaragua, these vessels usually having permission from the Mosquito authorities. The action of the authorities of the former seems to have been limited to searching for fugitives, usually rubber men or laborers, who were seeking to repudiate their contracts with their employers after having received advances from them. But while, as I have said, the powers of the gobernador were not extensively defined, so far as to be generally known to the scattered public in that locality, it appears that not long ago the gobernador sent letters to the agents and masters of steamers navigating the Rama that such steamers should not land at the Nicaraguan Government station at night, and that before landing at any time the steam whistle should be sounded, so that the proper officials of Nicaragua at that point could board such vessels and examine their cargoes, as a protection against smuggling into Nicaragua. This requirement seems to have been "honored more in the breach than in the observance."

Many of these steamers going up the Rama and Siquia, and the smaller ones going up the Mico, have been in the habit of stopping at the Mosquito Government house on the Rama, and then continuing the voyage up the river; and on returning down the river Rama, landing at the Nicaraguan Government station at the mouth of the Rama, and there delivering all cargo that they had for that side of the river. In some instances these vessels have landed at the Nicaraguan Government station even at night without objection being made thereto. — SAN JUAN DEL NORTE, NICARAGUA.

WM. A. BROWN,
Consul.

AMERICAN SCHOOLS IN SYRIA.

As supplementary to my No. 69, of April 24, last,* in respect to the re-opening of the Syrian schools, I have now the honor to inclose a copy of a dispatch from Consul Bissinger to the consul-general, whereby it appears that all of the twenty-one schools of the Board of Foreign Missions of the Reformed Presbyterian Church, located in the mutossarifiate of Latakia, in the vilayet of Beyrut, have been re-opened, excepting one in Tartous, which, it appears, can be re-opened as soon as the missionaries desire to do so. — CONSTANTINOPLE, *May 9, 1888.*

O. S. STRAUS.

*See page 240 of this number. The inclosure mentioned in the above dispatch is not published, as it contains nothing more than the facts recited by the minister.

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TRADE AND INDUSTRIES OF RUSSIA.

In preparing a report upon the economic condition of Russia a due regard should be had to the abnormal and somewhat erratic manner in which statistical information is gathered and dispensed. As new possessions accrue in central Asia the Government is confronted with an area unsurveyed, a population estimated, and a total absence of all information as to the resources of these newly-acquired territories. Again, as in the vast provinces of Siberia, where the Russian population is largely composed of convicts and where territories comprising millions of square miles are inhabited by barbarous and semi-civilized tribes, like the Samoyedes, Yakutes, Koriaks, and Buriats, all attempts to obtain accurate information except of the most rudimentary character must result in failure. Even the figures representing population and area must in many instances approximate the truth. It will therefore be seen that in the following report, which has been carefully prepared from the works issued by the various ministries and bureaus, tables are not for a uniform year, nor do they cover the same territorial areas. In compiling this information the latest authentic issues from the various departments have been consulted, and wherever any province has been added to or eliminated from what is known as Russia in Europe, attention has been called to such changes. The largest part of statistical effort has so far been confined to Russia in Europe, including the Grand Duchy of Finland and the Kingdom of Poland. Perhaps a clearer idea may be obtained by the following table, giving the different great subdivisions of the Russian Empire, their area and population, on the 1st day of January, 1883:

TABLE A.—*Area and population of the Russian Empire.*

Home.	Area.	Population.
	Sq. miles.	
1. Russia in Europe	1,909,245	78,269,114
1. Kingdom of Poland	49,722	7,884,100
2. Grand Duchy of Finland	145,909	2,203,358
3. Caucasus	184,595	6,654,017
4. Trans-Caspian Territory	215,510	430,000
5. Central Asia	1,184,518	5,201,946
6. Siberia	4,879,859	4,143,226
7. Sea of Aral	26,166	.....
8. Caspian Sea	171,611	.....
Total	8,767,135	104,785,761

Population to the square mile, 11.94.

A glance at the above table reveals the fact that the Russian Empire, compact and contiguous in all its parts, is the largest in the world, the English Empire excepted, and that the area of the latter, with its widely separated colonies and dependencies, is only 113,995 square miles greater. Further reference to the above table will be found under that part of this report treating of the movement of population.

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AGRICULTURE.

In common with other European countries Russian agriculture has suffered for a series of years from American and Indian competition. While the exports of grain for the past twelve months have been largely in excess of former years (as will be seen from Table C) this result has been obtained at the expense of the decline in value of the purchasing medium—the "credit ruble" as it is called—or what is the same thing, the high and increasing premium on gold. The latter having advanced while agricultural products have declined, exporters to England, Germany, France, and other countries having a gold standard have been enabled to realize profits upon their cargoes of grain.

From the imperfect reports for the current year 1887 the crops have been on the whole satisfactory. Particularly good results have been realized by the growers of barley owing to its excellent quality. Wheat has suffered in some of the provinces, but it is, nevertheless, a little above an average, while potatoes and oats have been disappointing.

In the report of the minister of finance for the years 1887–'88, Mr. Vischnogradsky says:

To these causes must be joined the abundant crop which God has accorded this year to Russia. This crop has considerably improved the economical situation, especially in the regions producing wheat; the prices of these cereals have been firm, thus assuring remuneration for the labor of the cultivator and a certain profit for the proprietor. Unfortunately the same can not be said for rye and other grains of inferior value, of which the crop, equally abundant, has been accompanied with a fall in prices. It is also necessary to add that in some districts (fortunately small in number and area) the crop has not been satisfactory.

It is to be hoped that this optimistic view of the minister may be true, but the annual report of the agricultural bureau of 1886 presents many inherent defects in the system which can only be remedied by a radical change extending through a series of years. It will take years to eliminate the evil conditions so antagonistic to this industry or to remove a moiety of the harassing difficulties which hamper the producers.

Conservatism, or an aversion to change, is inherent in all men who till the soil, and the Russian peasant proprietor is in no way different in this respect from his fellow producer in other lands, save that in him this element of character is accentuated until it becomes grotesque in his aversion to the adoption of new methods and machinery. In commenting upon the report alluded to the minister says:

According to the annual report of the agricultural department which we have just received, the crop of cereals in 1886 has been more or less satisfactory. The rye crop has been less than that of 1885, and that of winter wheat has been very small, the cultivation of which diminishes year by year. Spring wheat and oats have given very good results. The crops of 1886, 1885, and 1884 are divided according to the different grain, as follows:

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TABLE B.—*Crop in millions of bushels.*

Articles.	1886.	1885.	1884.
Rye	665,244	709,908	691,464
Winter wheat	40,134	78,240	78,636
Spring wheat	121,464	101,004	190,236
Barley	134,892	101,046	134,088
Wheat (Locar)	10,860	8,418	11,880
Indian corn	21,270	17,364	16,230
Buckwheat	80,280	43,728	69,792
Millet	64,566	24,096	46,926
Pease	19,236	10,962	25,558
Oats	572,922	391,494	504,690

Comparing the crops of 1858–'86 that of last year shows a decrease of 9,092,390 bushels on the winter grain crops (total, 705,981,510 bushels) and an increase of 84,542,772 bushels on the spring grain crops.

The potato crop has exceeded by 6,372,810 bushels the average (total, 126,114,810 bushels), but the quality was much inferior.

Examining further we perceive how much the relative abundance of the crop of 1886 has contributed to improve the situation of our rural economy. The report proves that our agriculture has been submitted to new losses through the low prices obtained for grain and the exchange value of the ruble. The principal reason for the precarious position of our rural economy is the refusal of our farmers to follow the paths of improvement adopted by their competitors across the sea.

The latter have the advantage of being able to transport their products much cheaper than we can and of being always correctly informed not only of the anticipated yield of the crops in other countries, but also of the prices, the stocks, and tendency of the European markets.

Being always well informed and not having mortgage charges to support, the American farmer is in a condition to resist more or less the maneuvers of speculation, and can form an idea as to the kind of grain of which the culture should be increased or diminished. With us the situation is very different; not only are the rates of transportation on our railways much higher than those of America (averaging 50 per cent. more), but our farmers are deeply in debt and are at the mercy of all kind of intermediary agents whose honesty is not of a very high standard. With regard to this, the singular fact appears that last year, at such an important market as Kharkov, the farmers were not informed as to the prices-current of grain, so that oats of the same quality were were sold simultaneously at 35 cents and 17½ cents the pood of 36 pounds. Further, instead of upholding our commerce in cereals with foreign markets, our exporters continue to compromise their reputation. A great number of merchants in London and other sea-port markets complained in 1886 that the cargoes of cereals and flax coming from Russia contained an abundance of heterogeneous matter.

While the inconvenience arising from the high rates of freight can be removed, our rural economy can not reckon on any present increase in its exports, for besides the competition of the United States, of India, and of the other grain-producing countries, we have to undergo a heavy loss from the increase in customs duties in the principal countries to which we export. These measures have already produced their effect in France, the importation of grain of this country having decreased from 857,000,000 of francs in 1879 to 224,200,000 of francs in 1886. Notwithstanding the new opening found through Switzerland to Genoa by the St. Gothard line, our exports of grain for Italy will not fail to feel an equal loss on account of the increase of the tariff duties from 1 franc to 3 francs per 100 kilograms of wheat, and from 2.77 to 5.50 francs on flour and from .86 to 2 francs on bran (of wheat, etc.). See law of April 24, 1887.

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We do not foresee any improvement for the price of grain, and we attribute the increase in our exports simply to the depreciation of our paper currency, by which in the end our agriculture can not profit.

The vintage of 1886 has been more or less of an average. The total quantity of the crop is not indicated, but in the Crimea a deciatine of land (2$\frac{1}{10}$ acres) has produced from 380 to 515 gallons of wine and in Bessarabia the produce varies from 7,200 to 11,800 pounds of grapes per deciatine. While the crop has been more abundant than in 1885, the price of wine has slightly advanced.

On various occasions the agricultural department has drawn the attention of our farmers to the urgent necessity of extending and perfecting raising of cattle in Russia. Our rural economy as well as the commerce in grain would reap incontestable profits by it, for by reducing to a certain extent the area of the fields cultivated, we would be able to raise the prices of the products. On the other hand the development of the raising of cattle would increase the fertility of the soil by supplying it with manure, and would contribute to the increase in our exports. Certainly some sacrifices are necessary, but is it not so in every enterprise?

Dr. Scherzer estimates the annual production of meat in Russia at 4,315,140,000 pounds, and the consumption at 1,252,800,000 pounds. The correctness of these figures is naturally somewhat uncertain, but it is a fact no one can contest that in Russia the production of meat exceeds the consumption, while Great Britain, France, Germany, Belgium, and Holland import from other countries the quantity of meat necessary to meet the needs of their consumers. The principal countries which supply this deficit are Italy, Austria and Hungary, the United States, and Canada. Attempts have been made lately in Denmark to export cattle and fresh meat to London and have succeeded admirably, but with some small sacrifices in the beginning.

In order to extend our commerce in meat and cattle with foreign markets, it is necessary first to redouble our energy in the struggle against epizooty so that this should disappear. One can judge of the ravages of this disease in our rural economy from the losses endured in the province of Samara, where epizooty formerly carried away annually an average of 87,416 head of cattle, amounting in value to at least $875,000.

Since 1885 measures of precaution have been taken nearly everywhere and the obligatory slaughter of cattle attacked by epizooty has given very satisfactory results. Thus, in the province of Samara, out of 267 localities infected in 1885 there only remained 12 localities in 1886. In the government of Moscow there were in 1875–'82 an average of 134 localities infected, with an annual loss of 4,573 head of cattle. On the application of measures of precaution the number of localities infected in this country fell to 22, and the annual loss of cattle to 843 head.

Professor Semmer estimates that since the year 1700 Russia has lost by epizoopy 54,000,000 head of cattle, representing a capital of $905,000,000.

The precarious situation and ignorance of our small farmers is one of the causes of the existence of epizooty. Living from hand to mouth, the peasant is very careless about giving his cattle proper food. In fact he only raises cattle for his own personal requirements and sells them at any price whenever a bad crop prevents him from providing for them during the winter. Besides, our railways are lacking considerably in all that concerns the transport of cattle. It happens often enough that cattle which are destined for our capital remain two or three days in wagons without water, and they arrive at the slaughter-houses either exhausted or sick. It is certainly not under such conditions that we may dream of the proper development of our meat exports.

The report does not contain any detailed information on the production of wool. Still it is to be supposed that it would suffice to satisfy the consumption if our textile industries would only follow the path of progress marked out by their competitors abroad. For an importation of 20,819,000 pounds of woolen goods we have paid last year to those supplying us $9,649,000, while for 84,236,000 pounds of wool exported in 1886 we have only received $10,597,000. This fact is sufficiently instructive to encourage our manufacturers who have

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great advantages over similar foreign industries in that labor is vastly cheaper with us than with them.

Last year has been generally favorable to our production of butter and cheese. The manufacturers of butter complain of the competition of oleomargarine, known as "French butter," which has not only filled our large towns but also the country markets. It is well to say on this subject that the Government has decided to take steps in order to repress this fraud. However that may be, our natural butter lacks much, both as to quality and price. If the farmers succeed in perfecting its manufacture the exportation of this article could be very much extended. Up to now the export of Russian butter is principally destined to England, but it is little appreciated abroad. The same may be said of our cheese. The prices of butter in 1886 varied between 21 cents to 48 cents per pound, and that of cheese from 11 to 22 cents per pound.

The silk husbandry gave in 1886 results more or less satisfactory. The produce has been 4,998,600 pounds of silk, of which 3,679,200 pounds were from Toorkistan, 1,317,600 pounds from the Trans-Caucasus and 1,800 pounds from the southern provinces.

As to the tobacco plantations in 1886, they were 176,623 in (including 4,690 in western Siberia) and 13,723 plantations in the Trans-Caucasus, with a total area of 149,129 acres against 137,049 acres in 1885. The tobacco has given a total crop of 122,918,400 pounds, making an average of about 824½ pounds per acre.

The area under beet roots in 1886 was 737,321 acres, 66,619 acres less than in 1885. The crop amounted to 1,028,507,228 pounds of beet-root sugar, against 1,174,900,548 pounds in 1885, or about 1,396⅓ pounds per acre.

Wages have not undergone any noticeable change. That of the workman with a horse varied from 50 cents to 65 cents per day (without food); the day laborer received an average of from 30 to 35 cents.

It is almost useless to comment upon the above report, emanating from the highest authority. Agriculture and all rural economy was at a low stage in Russia, owing to a lack of any kind of knowledge save of the rudest description. The condition of the mujiks or peasants is very much akin to that of the liberated slaves in America some ten years ago, and until education is more generally diffused among them it is almost hopeless to expect any marked improvements. If the large landed proprietors would only set an example of scientific farming, using judiciously the fertilizers adapted to the soil, and employing the best labor-saving machinery and agricultural implements, the small peasant farmers seeing the result would be induced in time to follow; but the latter have been too long in a state of tutelage and dependency to realize that they must take any initiative move. To the next generation—the children of the freed serfs—Russia must look for that recuperative energy which is the outcome of education. The present generation will always work under the memory of that burden of bondage which they bore in their youth. So they farm in a half-dazed fashion, scratching the ground with a half starved animal, with what, to an American farmer, would be a rude plow, giving the land no proper nutriment, cultivating their crops imperfectly, reaping their scanty harvests, content to make both ends meet, and to be ready for the tax-gatherer when he comes on his never-failing mission. And yet what possibilities there are to intelligent farming in some parts of the Empire.

In addition to the fertile provinces in Russia in Europe, there are vast bodies of land (estimated by some writers at over 5,000,000 acres) in southern

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and middle Siberia, capable of producing an unlimited quantity of wheat, barley, rye, oats, and other cereals, and of supplying an enormous number of horses and cattle. Along the banks of the Obi, Yenessei, and Lena, and for hundreds of square miles between them the land is a garden spot, the soil consisting of a rich, black earth. So exclusively is it of this character that it is almost impossible for a geologist to pick up a few specimen pebbles. It is virgin soil, and is as rich as the delta of the Nile. Owing to lack of transportation the prices of land, grain, meat, and labor are ridiculously low. Complaints are made that everything has risen in value in these provinces during the past few years; still one can buy land from the Government at from 50 cents per acre and purchase meat at 4 cents per pound, while rye flour commands only $1 per 100 pounds. Ten years ago the price of meat on the Obi was 1 cent per pound. If the Government would only expend some of its subventions in opening the Yaman Canal from the Gulf of Obi, and in building railroads into these provinces so rich in soil, in mineral wealth, and in the product of fisheries, the Russian budget would show a surplus and the Government would have no reason to face reluctant foreign bankers nor draw its drafts upon posterity. At present there is but one hope for the development of agriculture in these rich fields, and that of the faintest description. Captain Wiggins and Professor Nordenskjord have demonstrated the feasibility of entering the Obi and Yenessei by steamer through the Kara Sea for a limited time during the summer, but the navigation is too perilous, too uncertain to tempt capital to invest in this garden of Russia.*

The only outlet for these immense products would be along the shores of the frozen ocean and past the tortuous and shifting currents of Nova Zembla.

When Russia has settled her political and military problems she will doubtless devote herself to the new far-seeing economic helps of education and the development of her immense natural resources. Until then she must remain in bondage to foreign creditors, and Government and people must face an annual recurring deficit. Every disease has its cure; but experience alone can teach statesmen as well as individuals how to find the true remedy.

During the year 1886–'87 the 229 sugar refineries of Russia produced 176,403,492 pounds of loaf sugar, 814,711,212 pounds of light sugar, 1,810,476 pounds of dark sugar, and 118,376 gallons of molasses.

There has been an immense increase in the export of grain for the year ending December 31, 1887, as will be seen from the following statement:

TABLE C.—*Statement of exports of grain from Russia from January 1, 1887, to January 1, 1888, as compared with 1886 (in bushels).*

	1886.	1887.
Reval	11,208,702	4,116,390
Riga	16,820,388	6,373,944
Libau	24,982,620	15,229,812
Wierzbolow	934,170	658,818
Graievo	8,179,062	3,518,016
Milva	5,232,960	2,910,006

*See CONSULAR REPORT No. 92, p. 161.

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	1886.	1887.
Neschava	827,364	1,089,276
Sosnitza	2,383,650	2,137.098
Alenandrovsk	1,868,766	1,566,672
Radzivolov	1,278,504	1,643,166
Volotchiok	1,382,136	852,840
Odessa	59,598,714	39,813,780
Sevastopol	9,522,990	7,114,980
Nikolaiev	18,972,114	8,737,992
Berdiansk	6,577,980	6,412,758
Taganrog	7,306,092	4,659,246
Rostov	19,710,450	11,454,960
Poti	3,332,886	.....
Batum	12,413,856	.....
Baku	53,316	.....
Total	212,586,690	118,298,754

As remarked above this is due to the great advance in gold as compared with the paper currency, and has been of service to Russia only in allowing her to work off the large surplus remaining on hand after supplying the home demand.

The number of domestic animals in European Russia in 1883 was as follows: Horned cattle, 23,628,031; sheep, common, 37,349,857, high bred, 9,374,879, total sheep, 46,724736; hogs, 9,361,980; goats, 1,067,137; horses, 17,880,792.

The losses from disease the previous year 1882 were: Horned cattle, 103,246; sheep, hogs, and goats, 13,526; horses, 7,558.

MANUFACTURES.

In this most important industry, the foundation of national wealth, Russia does not occupy the position to which she is entitled by virtue of her vast natural resources, her population, and the fostering care of an abnormally high protective tariff. Despite all that her statesmen have done for this interest by placing enormous duties upon raw materials and manufactured goods, it is to Germany, Austria, France, and other countries that her consumers look for many articles which should be supplied by her own workshops. The cause is perhaps not difficult to determine; but as it enters into the realm of political jurisprudence it is necessarily beyond the purview of a strictly commercial report.

The report issued by the bureau of manufacturing industries in Russia and Poland for 1884–'85 is a very important document, showing careful preparation and analysis; but it has been found necessary to consult a number of other works on the same subject to find all essential information. The names of the owners and the location of the works are given, together with many interesting details, the bulk of which is duly set forth in the following tables under classified indices.

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TABLE D.—*Statistics of manufactories in Russia in Europe, including Poland, giving the number of workmen and annual output.*

Manufactures.	Russia.			Poland.		
	Mills, establishments, etc.	Laborers.	Value of product.	Mills, establishments, etc.	Laborers.	Value of product.
Textile fabrics.						
Wool:						
Wool spinning	68	4,789	$2,586,509	53	5,703	$5,922,560
Carpeting [1]	9	802	275,006	2	56	20,500
Felting	41	637	155,000	.....	.....	.....
Woolen cloth [2]	390	48,003	20,384,500	174	3,178	2,129,500
Light woolen and mixed weavings [3]	190	19,072	10,562,500	105	7,865	6,548,000
Wool knitting	67	1,487	525,500	28	163	57,500
Cotton:						
Wadding	53	148	427,000	.....	.....	.....
Cotton spinning [4]	67	116,494	56,270,000	30	9,751	9,499,000
Cotton weaving [5]	488	80,425	27,980,000	173	11,864	10,556,500
Tape and braid weaving	53	1,908	898,500	37	1,243	482,000
Flax:						
Flax beating	55	2,705	1,843,500	.....	.....	.....
Flax spinning [6]	24	20,780	6,539,000	.....	.....	.....
Linen [7]	87	15,481	5,027,000	9	7,810	1,871,500
Silk:						
Silk weaving [8]	173	12,352	4,460,000	3	106	71,000
Brocades, gold brocades, etc. [9]	112	2,625	1,340,000	.....	.....	.....
Ribbon	13	696	302,500	3	227	165,000
Dyeing and printing	590	29,749	27,778,000	38	1,235	1,348,000
Bleaching	68	3,251	984,500	27	1,116	515,500
Rope, hemp spinning, etc. [10]	308	7,099	3,103,500	1	4	3,500
Oil cloth and backing	31	878	713,000	1	9	3,000
Hats	29	739	502,500	11	344	249,000
Paper.						
Paper	140	13,804	7,348,500	27	1,891	559,500
Wall paper	27	1,209	608,000	4	232	95,000
Various manufactures of paper	44	1,817	1,301,000	4	65	24,000
Products from wood.						
Saw mills	438	13,800	6,985,006	160	1,317	997,000
Furniture and joining	96	2,775	1,160,009	24	1,733	503,000
Miscellaneous woodwork	40	891	231,500	8	371	126,500
Wood pulp [11]	26	391	301,500	.....	.....	.....
Cork	10	1,831	852,500	.....	.....	.....
Matting (common)	70	4,184	274,000	.....	.....	.....
Tar and turpentine	964	2,612	522,000	67	206	38,500

[1] There are 323 weaving looms in Russia.
[2] Total number of yards produced in Russia, 20,156,888.
[3] Total number of weaving looms in Russia, 14,500.
[4] Total number of spindles in Russia, 3,200,000; average annual product of yarn, 176,580,000 pounds.
[5] Russia produces 11,595,000 pieces of cloth annually.
[6] Total of flax thread produced in Russia, 45,360,000 pounds; number of spindles in Russia, 185,000.
[7] Russia produced 1,336,000 pieces, and possesses 7,689 weaving looms.
[8] Number of weaving looms in Russia, 10,059.
[9] Out of the 112 mills 69 are small ones, producing an annual value not exceeding $500.
[10] Russia in Europe produces 49,143,260 pounds.
[11] Russia in Europe produced 13,456,800 pounds of pulp

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TABLE D. — *Statistics of manufactories in Russia in Europe, etc.* — Continued.

Manufactures.	Russia.			Poland.		
	Mills, establishments, etc.	Laborers.	Value of product.	Mills, establishments, etc.	Laborers.	Value of product.
Chemical products.						
Chemical and coloring products	198	5,423	$6,441,000	17	327	$404,000
Saltpeter [1]	18	593	226,500	.....	.....	.....
Potash [2]	101	913	165,000	.....	.....	.....
Matches	240	8,419	1,243,000	121	212	62,000
Lac and sealing wax	32	499	1,251,000	1	2	3,000
Cosmetics	21	657	1,356,500	6	112	229,000
Tallow and wax products.						
Tallow and fat working [3]	393	3,788	3,613,000	2	5	2,900
Soap [4]	373	1,504	4,510,000	42	157	393,000
Tallow candles [5]	332	646	625,000	45	82	73,000
Paraffine and stearine candles [6]	12	2,280	4,737,000	4	141	371,009
Wax beating and bleaching [7]	50	341	467,000	.....	.....	.....
Wax candles [8]	228	1,258	2,627,000	3	174	164,500
Leather and other animal products.						
Leather [9]	3,129	19,685	19,549,000	389	2,909	3,346,500
Various work from leather	32	1,697	801,500	2	23	16,500
Furs and sheep-skins	406	2,915	1,353,000	.....	.....	.....
Bone burning	48	739	890,500	8	123	102,000
Glue boiling	111	905	287,500	3	42	17,500
Bristles, hair, horns, and down	50	1,320	591,500	11	555	198,000
Lime, brick, pottery, and glass.						
Lime, cement, and alabaster	219	4,047	1,516,500	54	719	289,500
Bricks	2,890	28,630	3,712,000	483	4,409	1,010,500
Pottery and Dutch tile for stoves, etc.	205	1,502	311,500	104	358	1169500
Porcelain and crockery	42	7,695	1,777,000	8	797	204,500
Glass	206	18,776	4,587,500	30	2,143	567,500
Stone cutting and polishing	20	567	112,500	11	207	62,000
Machinery and metal products.						
Foundries	143	4,036	1,210,000	16	537	210,000
Iron and steel rails	41	11,497	7,948,500	5	1,904	2,590,500
Machinery	261	41,305	19,575,000	66	4,601	3,460,000
Nails and wire	69	3,754	4,396,000	10	728	582,000
Miscellaneous articles of metal	254	11,475	3,756,000	53	1,494	798,500
Brass and bronze	182	5,820	3,566,500	18	633	284,000
Bells	33	329	572,000	1	2	1,500
Arms [10]	13	3,956	1,331,434	.....	.....	.....
Cannon and projectiles [10]	3	4,321	729,234	.....	.....	.....
Agricultural machines [10]	67	5,256	2,696,748	.....	.....	.....

[1] Total amount of saltpeter produced in Russia in Europe, 3,988,800 pounds.

[2] Total amount of potash produced in Russia in Europe, 6,768,000 pounds.

[3] Of tallow and fat Russia in Europe produces 47,900,000 pounds, and Poland 396,000 pounds, making a total of 48,296,000 pounds.

[4] Russia in Europe produces 89,300,000 pounds of soap.

[5] Russia in Europe produces 8,029,900 pounds of tallow candles.

[6] Russia in Europe produces 31,127,580 pounds of paraffine and stearine candles, and 11,124,000 pounds of oleaine and glycerine.

[7] Russia produces 1,710,000 pounds.

[8] Russia in Europe produces 8,351,388 pounds of wax candles.

[9] Russia in Europe produces 228,600,000 pounds of leather.

[10] Russia in Europe and Poland combined.

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TABLE D.—*Statistics of manufactories in Russia in Europe, etc.*—Continued.

Manufactures.	Russia.			Poland.		
	Mills, establishments, etc.	Laborers.	Value of product.	Mills, establishments, etc.	Laborers.	Value of product.
Food products. (Russia and Poland combined.)						
Dairy products	325	806	$385,974	.....	.....	.....
Fish products	236	2,473	326,452	.....	.....	.....
Chicory products	7	152	359,795	.....	.....	.....
Starch and molasses	1,223	4,593	930,685	.....	.....	.....
Flour	20,663	42,048	43,485,605	.....	.....	.....
Macaroni and biscuits	66	659	722,158	.....	.....	.....
Oils (not mineral)	10,013	23,452	5,618,216	.....	.....	.....
Malt	173	510	763,489	.....	.....	.....
Yeast	51	.....	940,400	.....	.....	.....
Vinegar	350	389	292,003	62	172	57,933
Various products.						
India rubber	2	1,727	3,442,500	1	26	$62,500
Mineral oils, asphalt, etc	46	1,522	2,276,000	5	85	56,500
Powder and nipple caps	8	2,146	1,520,500	.....	.....	.....
Musical instruments	30	978	601,500	9	141	70,000
Pencils and slates	5	180	59,000	.....	.....	.....
Equipages	124	2,408	907,000	13	281	147,500
All other manufactures	2,319	38,512	29,177,926	.....	.....	.....

Products subject to excise duties.

Products.		Distilleries, breweries, etc.	Laborers.	Amount of production.		Value of product.
				Gallons.	*Pounds.*	*Dollars.*
Alcohol	Russia	1,887	36,108	92,379,884	.....	[1] 15,2612,310
	Poland	400	2,747	9,361,656	.....	
Whisky, or vodka	Russia	265	3,851	31,912,542	.....	23,889,500
	Poland	54	470	.....	.....	2,467,500
Beer	Russia	1,272	9,608	74,336,292	.....	24,108,248
	Poland	463	1,916	22,096,800	.....	
Beet-root sugar [2]	Russia	203	78,337	.....	571,567,168	.....
	Poland	42	16,223	.....	102,527,748	.....
Sugar refining	Russia	33	13,375	.....	.....	43,765,500
	Poland	27	.....	.....	.....	.....
Tobacco	Russia	419	28,783	.....	121,470,660	[1] 28,790,959
	Poland	16	2,806	.....	6,331,932	

[1] Estimated value with excise.

[2] Russia and Poland produced 3,993,111 tons beet root, and 30,999,398 gallons treacle.

The foregoing tables show a total of 58,551 works of all kinds, employing 1, 016,745 laborers. The total value of production was $754,500,469.

In these tables the ruble has been taken at the value of 50 cents, United States currency.

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This statement, taken without comment, would exhibit a great lack of industrial enterprise for an Empire of 105,000,000 inhabitants; but no report on the manufactures of Russia can be complete until a proper census of the domestic artisans and their products is prepared—a work, I must confess, replete with difficulties. It must be borne in mind, however, that this report deals only with the large establishments scattered through sixty provinces or governments. Very little attention has been paid to what is known as the domestic industries of Russia. The system is peculiar to this Empire, although it has a certain counterpart in French and Swiss industry. There is a large number of skilled workmen not employed in any manufacturing establishment, who at the same time prepare their work at home. Their houses are their workshops; some of them labor at their trades during the winter, when outdoor work is impossible, preferring to visit the cities in search of employment or to till their crops until the rigors of winter drive them to indoor work. The product of these artisans is sold either in the various shops in the cities, is carried to the different fairs, or is peddled out from little stands in the towns, as may seem most expedient. But while the workmanship in many instances is not inferior to that of the great manufactories, and is always good enough for a certain class of consumers, the prices at which these products are sold are so low as to interfere very seriously with the large established factories. It is hoped by the latter that these artisans may be gradually absorbed by them through the increasing demand for skilled labor and this ruinuous competition ended; but at present there is little prospect of its being accomplished.* The number of such house artisans is estimated by some writers to be as high as 7,500,000. Giving a value of $250 only as the average annual product of each workman we have the sum of $1,500,000,000. But the average value is probably more than the amount named. One authority goes so far as to place the annual value of this product as high as $7,500,000,000. Whether this guess is near the truth or not one thing is very clear—Russia does not depend upon her established manufactories for her supplies. According to these tables they furnish but a moiety of the manufactured products consumed. It is from her domestic artisans, from the kustar workshops, that her people supply their wants.

Table E furnishes a very interesting statement of the condition of some of the principal manufacturing industries of Russia during the five years 1880 to 1884, and the comparative increase and decrease in their number and products. It is to be regretted that these figures have not been carried out to 1887–'88, but it must be borne in mind that statistics in many departments have not been reduced to that degree of accuracy and promptness which is a marked feature of American, English, and French bureaus. It is to be still more regretted, because the belief prevails among some people that Russia has made material advances during the past three years, both in the conditions which surround her manufacturing interests and the care with which such statistical information is prepared. In one branch, namely, the

* A very full report on these house, or kustar, industries was published in CONSULAR REPORT No. 58, p. 101.

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manufacture of cotton, large additions are being made to the number of spindles and weaving looms, and it is but fair to presume that other equally important branches are progressing favorably. The next table issued will be of great value to those who feel an interest in the economic conditions of this colossal Empire, so different in its surroundings from other civilized nations.

TABLE E.—*Comparative statement of some of the principal manufacturing industries in Russia in Europe and in the Kingdom of Poland in 1880 and in 1884.*

Industry in the manufacture of—	1880.			1884.		
	No. of mills.	No. of laborers.	Value of products.	No. of mills.	No. of laborers.	Value of products.
Cotton	868	186,880	$88,102,000	881	222,190	$106,113,000
Wool	1,169	111,570	87,537,000	1,127	93,795	52,749,000
Flax	173	33,970	13,751,000	185	46,776	15,045,000
Silk	226	13,179	5,738,000	304	16,006	6,324,000
Dyed goods	773	34,634	33,320,000	723	35,341	30,626,000
Paper	171	13,149	6,303,000	167	15,195	8,308,000
Chemicals	686	14,011	7,718,000	647	17,157	11,436,000
Leather	3,898	23,367	24,409,000	3,568	22,594	22,395,000
Glass	207	14,613	4,154,000	236	20,919	5,155,000
Porcelain	59	7,786	1,609,000	50	8,495	1,971,000
Machinery	270	48,383	28,203,000	327	45,906	23,030,000
Total	8,500	501,541	270,844,000	8,215	544,374	283,152,000

It is evident also that in the products of paper, chemicals, porcelain, and crockery, smaller works must have been absorbed or the larger works have increased their capacity, for with a decrease in the number of works we have an increase both in number of workmen and value of the output, or as a total result, the number of works exhibit a decrease of 285, the number of workmen an increase of 42,832, and the production an increase of $12,308,000.

If we take 100 as the value of products for 1880 we shall have for 1884 the increase or decrease in each branch:

TABLE F.

In the manufacture of—	1880. Per cent.	1884. Per cent.	Product of each workman in 1884.	Product of each workman in 1880.
Cotton	100	120	$477.57	$471.43
Wool	100	91.5	562.38	515.71
Flax	100	109.4	321.63	404.79
Silk and trimmings	100	110.2	395.09	435.38
Dyed and printed goods	100	91.9	866.58	962.06
Paper	100	131.6	546.75	479.35
Chemicals	100	148.1	666.55	550.85
Leather	100	91.7	991.19	1,044.59
Glass	100	124.1	246.42	284.26
Porcelain and crockery	100	122.4	232.01	206.65
Machinery	100	81.6	501.67	582.91

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It is interesting to compare the value of product produced by a workman in 1884 as compared with 1880. Average value of product of each workman: In 1880, $540; 1884, $520.

MINES IN RUSSIA.

The great mineral wealth of Russia is so well known that comment seems almost superfluous. Seldom has any country been possessed of such advantages. Siberia has been but partially developed and the Caucasus remains almost a virgin field. Despite protecting and ameliorating laws enacted by successive Governments the industry has fallen off in its producing capacity and value of product during the years extending from 1875 to 1884, as will be seen from the tables contained in this report.

The lack of labor, the difficulties of transportation, and the laws which are a clog upon the necessary adjuncts of foreign capital and enterprise weigh heavily upon this great source of wealth, and until these impediments are removed no marked improvement is possible. There is hardly a metal the production of which might not be at least quadrupled and its value utilized in the develpment of art, commerce, and manufactures, and all that tends to make a country rich and powerful, but the last published report upon the mining interests of Russia does not hold out much encouragement to those who feel that the Empire's financial prosperity lies in the realm of industrial pursuits. A transcontinental railway to the Pacific with subsidiary branches would do even more for the material development of Russia than the completion of our own great highways has accomplished for America. If by such action the practically worthless American desert has been made one of the prime elements contributing the material wealth, what would it not accomplish for Siberia, with her matchless water-ways, her fertile soil, her immense fisheries, and her inexhaustible mines of metals and precious stones? Doubtless this will come in time, but not until all the military and strategic railways have been completed. The policy of the Government seems to subordinate every necessity for economic improvements to military supremacy and to relegate all its industrial possibilities to the remote future.

The following tables will show the condition of the mining interests of the Russian Empire in the year 1884, as well as its present value compared with former years:

Total products of the mines of Russia worked during the year 1884.

	Avoirdupois weight.		Avoirdupois weight.
Gold.....pounds...	78,424	Coal.....tons...	4,318,583
Platina..... " ...	4,932	Naphtha and petroleum products...galls..	103,280,200
Silver..... " ...	21,240	Salt.....tons...	1,125,023
Tin..... " ...	1,389,660	Manganese..... " ...	24,323
Copper.....tons...	6,834	Sulphur..... " ...	830
Zinc..... " ...	4,745	Lead..... " ...	14
Cast-iron..... " ...	559,901	Porcelain clay..... " ...	3,600
Iron..... " ...	398,060	Crude petroleum.....gallons...	389,960,772
Steel..... " ...	227,439		

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Statement giving number of mines, laborers, and product during the year 1884.

Gold mines:		
Number of mines*		1,306
Number of acres (area)		1,288,034
Number of workmen		76,465
Number of tons of gold-bearing sand		21,601,347
Product of gold dust (No. of pounds)		78,424
Platina:		
Number of mines		71
Number of laborers		1,768
Number of tons of ore		351,036
Number of pounds produced		4,932
Silver and tin:		
Number of mines		27
Number of laborers		1,649
Number of pounds produced:		
Silver	21,240	
Tin	1,389,600	
		1,410,840
Copper:		
Number of mines		57
Number of tons extracted		165,630
Number of tons of product		6,834
Number of laborers at the mines and works		8,409
Zinc:		
Number of mines		8
Number of laborers		406
Number of tons extracted		30,938
Number of tons of ore washed		11,463
Number of tons of pure zinc obtained		4,745
Lead:		
Number of mines		1
Number of laborers		18
Number of tons obtained of pure lead from 38 tons of crude ore which remained from last year		14
Iron mines:		
Number of mines in existence		752
Number of laborers		3,203
Number of tons of product		1,115,358
Iron works;		
Number of works in existence		290
Number of water-wheels		1,266
Amount of horse-power		27,015
Number of turbine-wheels		182
Amount of horse-power		9,905
Number of steam-engines		826
Amount of horse-power		40,617
Number of movable engines		73
Number of laborers		177,873
Number of cords of wood consumed		3,160,191
Number of bushels of charcoal consumed		1,583,165
Number of tons of coal and coke consumed		474,364
Cast-iron:		
Number of works		134
Number of tons produced		559,901
Steel:		
Number of works in existence		36
Number of furnaces		674
Steel made use of:		
Tons of cement steel		1,992
Tons of puddling steel		3,008
Tons of Bessemer steel		112,692
Tons of cast steel		4,169
Tons of Martin steel		75,430
Outturn of steel:		
Number of tons of assorted	19,868	
Tons of rails	107,975	
Tons of sheet	6,702	
Tons of miscellaneous	92,893	
		227,438
Coal:		
Number of pits		172
Number of laborers		27,711
Number of tons produced		4,318,583
Manganese:		
Number of mines		86
Number of laborers		149
Tons produced in Russia	20,003	
According to the statement made in the report of the minister of domains for the Caucasus district the product in that province was	2,730	
In all others	1,590	
		24,323
Sulphur:		
Number of mines		3
Number of laborers		197
Tons of ore extracted		6,003
Tons of pure sulphur produced		830
Naphtha and petroleum:		
Number of works		48
Number of laborers		3,573
Gallons of benzine	652,581	
Gallons of illuminating oil	87,906,313	
Gallons of mineral grease	14,721,303	
		103,280,200
Equal in number of barrels (of 40 gallons each)		25,820,500
Salt:		
Number of mines and works		126
Number of laborers		19,471
Number of tons produced		1,125,023
Porcelain clay:		
Number of pits		1
Number of tons obtained		3,600
Ornamental stone cutting and polishing:		
Number of works†		2
Number of water-wheels		2
Amount of horse-power		160
Number of turbine-wheels		2
Amount of horse-power		16
Number of laborers		206
Crude petroleum:		
Number of firms		65
Number of wells		312
Number of laborers		1,978
Total outflow in gallons		389,960,772

*In 1884, 2,612 mines were not worked. †In 1884 the works at Ekaterineburg did not exist.

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The outflow of petroleum represents only that portion which is utilized and transported. The lack of tanks and reservoirs or pipe lines causes an immense loss. Some of the proprietors conduct the outflow into simple pits dug in near proximity to the wells, and remove only such quantities as can be transported. There is therefore an almost criminal waste of the material. Other wells are permitted to flow almost uninterruptedly without effort to secure the product. Again, the one line of railway is still incomplete, and the product has of necessity to be handled twice before reaching the port of Batum. Great changes are on foot, and in a very short time we may expect to see the available product quadrupled and the necessary facilities for transport enlarged to equal the demands made upon it. It is reported that new processes have been discovered by which both the quantity and quality of the oil extracted will be very greatly enhanced. When these changes are completed Russia will prove a formidable competitor to America both in Europe and in Asia. It can not be expected that Russian statesmen and economists will permit this industry to remain in its unsatisfactory condition, and before very much time has elapsed we may expect to learn that capital and skill have been found ready to utilize this great source of wealth. Indeed it has already attracted the attention of capitalists in Europe, and all that remains is to arrange with the Government such terms and conditions as may be advantageous to both parties.

Table showing comparative condition of principal mining industries of the Russian Empire for the past ten years.

Year.	Gold.	Platina.	Silver.	Tin.	Copper.	Zinc.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Tons.*	*Tons.*
1875	71,856	3,391	21,816	2,378,160	4,020	4,379
1876	73,944	3,456	24,588	2,566,008	4,256	5,079
1877	90,108	3,796	24,516	2,646,612	3,850	5,089
1878	92,692	4,536	25,164	3,070,116	3,868	5,101
1879	94,752	4,968	25,102	2,982,312	3,432	4,745
1880	95,112	6,444	22,212	2,518,092	3,519	4,820
1881	80,784	6,562	20,736	2,167,848	3,806	4,997
1882	79,452	8,975	17,604	1,258,452	3,946	4,910
1883	78,552	7,773	16,200	1,193,904	4,787	4,028
1884	78,424	4,932	21,240	1,389,600	6,834	4,745

Year.	Cast-iron.	Iron.	Steel.	Coal.	Petroleum.	Salt.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Gallons.*	*Tons.*
1875	469,050	333,858	14,206	1,867,908	35,327,711	683,845
1876	485,221	321,647	19,715	2,003,382	44,524,411	787,316
1877	439,259	292,742	48,651	1,964,467	54,069,822	521,139
1878	458,559	300,563	70,582	2,771,671	66,226,892	858,213
1879	475,430	307,816	230,779	3,208,284	92,801,306	898,738
1880	492,558	320,949	338,199	3,614,127	92,908,502	856,294
1881	515,910	321,105	322,332	3,838,652	174,920,806	913,218
1882	508,266	326,732	272,164	4,143,483	218,280,675	1,831,852
1883	529,324	354,731	243,827	4,370,375	260,928,562	1,245,500
1884	559,901	393,060	227,439	4,318,583	389,960,772	1,126,023

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FISHERIES.

The fisheries of the Russian Empire, apart from their commercial importance, are of marked significance and value to a population obliged by their religion to observe so many fast days during the calendar year. The amount consumed per head has not been computed, but it must be very large, perhaps greater than in any other country, the littoral of the United States and Canada excepted. The rivers teem with almost every variety, and the accounts given by travelers and writers of the annual run of migratory fish in the Obi, Yenessei, Lena, Amur, Anadir, and other Siberian rivers, trench upon the domain of piscatorial romance.

The fish usually found in these waters are the salmon, herring, mullet, pike, perch, bleak, sturlet, sturgeon, nelma, and muk-sum. There are large fisheries in the Gulf of Obi and Taz, where fish are caught in summer and placed in ponds until cold weather approaches. They are then taken out, frozen, and sent to St. Petersburg, 2,000 miles away, for sale.

In June they begin their ascent of the Obi. Below Ozdork they form shoals and can be taken out by the hand. Large quantities are dried for the fair at Nijni-Novgorod. Erman estimates the annual run to be not less than 26,000,000. In the Lower Amur sturgeon weighing from 200 to 300 pounds are caught, the dried bones and cleaned gelatinous entrails forming a prominent article of commerce with the Manchu Tartars, the price of the bones being $1, and of dried entrails $1.75, per pound. On the Ussuri, during the salmon spawning season, the traveler can, from the banks, with his hand lift the fish by the dozen.

At Nicolaevsk salmon weighing from 15 to 25 pounds apiece can be bought during the season, lasting from the 15th of August to the 15th of September, at $2.50 per 1,000 fish. About 1,000,000 pounds are salted annually, but exportation is of very recent growth. Throughout the Primarsk province the price of dried and salted or smoked fish ranges from $2 to $5.50 per 100 pounds.

During the spawning season the fish enter the Anadir and other rivers of the Primarsk in such vast multitudes that they obstruct the channel. The noise made by the movement of their fins may be heard at a considerable distance and the water rises upon the banks. Even the half wild dogs of the Chuckchees, Koriaks, and Kamchatdales, which draw their sledges over the snow, wade into the stream and take the fish out in their mouths. The water becomes undrinkable, and the atmosphere is poisoned by the decomposition of millions of the finny tribe who perish in the mad rush for the spawning ground.*

The bulk of all this catch is consumed by the semi-barbarous tribes at present, and some idea may be formed of its extent when we remember that the supply necessary to the support of a dog is reckoned to be equal to

* Being mindful of the tremulous foundation upon which fish statistics are built, I hope it may not be out of place to say that the authority from which these mild statements are extracted is the recent work of Mr. Landsell upon Siberia.

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100,000 herrings annually. Still the day is not far distant when this valuable supply will find its way into countries not so blessed with this abundant element of food. The Volga, Don, Dnieper, Neva, and Vistula (rivers of European Russia), the Black and Caspian seas, the Sea of Azoff, and the Gulfs of Finland and Bothnia yield their tribute also; but correct statistical information is lacking, save in the amount and value of exports.

For the years 1885 and 1886 the exports of fish and fish products were as follows:

Description.	1885.		1886.	
	Number of pounds.	Value.	Number of pounds.	Value.
Fish roes	4,783,824	$224,403	5,077,512	$269,358
Caviar	821,124	526,429	987,552	618,386
Fresh fish	2,457,792	119,636	2,908,908	169,069
Fish in oils	12,672	1,326	2,880	539
Smoked and salted fish	6,774,228	577,493	8,701,452	469,763
Fish-oils	153,645	6,768	94,896	7,651
Fish glue, entrails, and bones	263,520	264,461	261,512	412,425
Total	15,266,808	1,720,516	18,034,712	1,947,291

FINANCES.

To exhibit the resources and expenditures of the Empire a detailed statement of the estimated receipts and expenditures for 1888 (comparing the same with the year 1887) will prove of value. This statement has created great interest in Europe and should be of equal interest in America. The ruble is of such an ambulatory character that it seems impossible to determine just what is its true value in American currency. In this table I prefer to give the different items in rubles, with the qualifying remark that statisticians can take its value on the 1st day of January, 1887, which was about 43 cents, or its value on the 1st day of January, 1888, at 41¾ cents per ruble. At the moment of writing this report its value is about 40⅞ cents, with every indication of further depreciation. In the following tables the minister of finance has reduced the metallic ruble (value 75 cents) to the value of the credit ruble (42 cents) in American currency, so that each item is stated in its credit equivalent:

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TABLE G.— *Estimated receipts and expenditures of the Empire of Russia for 1888 compared with actual receipts and expenditures for 1887.*

RECEIPTS.

I.— *Ordinary receipts.— Taxes.*

A.— DIRECT TAXES.

	Estimated. Budget for 1888. *Rubles.*	Actual. Budget for 1887. *Rubles.*
Personal, land taxes and forestry tax	43,116,897	40,168,741
Trade licenses	29,758,000	27,200,000
Five per-cent. tax on the income of capital	10,983,000	10,397,000
Total direct taxes	83,857,897	77,765,741

B.— INDIRECT TAXES.

1. Excise and consumption duties:		
Tax on spirits, wine and malt liquors	252,137,800	236,450,380
Tax on tobacco	26,596,000	79,549,000
Tax on sugar	17,164,000	19,708,000
Tax on kerosene	5,000,000	
Tax on matches	1,000,000	
Duties on imports	124,583,000	115,724,000
2. Imposts:		
Stamps	19,800,000	16,520,000
Registry fees	10,110,000	10,270,000
Fees on transmission of property	3,700,000	3,400,000
Passports	3,295,000	3,293,000
Taxes on travelers and on goods by express	8,100,000	9,000,000
Tax on fire insurance companies' policies	3,377,000	3,311,000
Tax on the increase of wages of state officials	1,151,000	1,090,000
Various taxes	4,652,159	3,388,830
	480,665,239	441,704,210

2.— ROYAL TAXES.

Tax on mines	2,773,789	2,007,755
Income from the mint	201,800	568,340
Postal service	17,352,500	17,109,000
Telegraphic service	9,654,000	9,624,630
Total of royal taxes	29,982,089	29,009,725

3.— INCOME FROM DOMAINS.

Collection on land debts and others	8,922,884	8,682,335
Sale of land by the state	637,819	892,288
Forests	12,788,304	12,918,136
Mines and metallurgic establishments	5,783,400	5,783,048
Railroads	21,836,210	15,743,766
Total income from domains	49,968,617	44,019,573

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TABLE G.—*Estimated receipts and expenditures of the Empire of Russia, etc.*—Continued.

	Estimated. Budget for 1888. *Rubles.*	Actual. Budget for 1887. *Rubles.*
4.—REDEMPTORY PAYMENTS.		
Payments made by freed serfs for land which formerly belonged to land proprietors	43,229,777	44,744,208
Payments made by freed serfs for land which formerly belonged to the state	53,462,787	53,066,911
Total payments made by freed serfs	96,692,560	97,811,119
5.—DIVERS RECEIPTS.		
Technical establishments, books and newspapers published by the Government	1,408,034	1,427,850
Sale of economic products	2,030,697	2,111,258
Payments made by the railway societies on their obligations	47,092,039	32,161,952
Receipts coming from interest-bearing securities belonging to the Government and outcome of banking operations	8,257,823	21,752,694
Contributions of scholars belonging to governmental schools	717,149	712,338
Recovery of debts	21,505,337	20,240,081
Fines, damages, and interest	1,267,518	1,630,896
Funds collected from the revenue of towns and on other resources	13,241,706	12,598,313
Divers receipts	15,080,927	10,252,015
Total of divers receipts	110,601,226	102,887,398
Total of ordinary receipts	851,767,628	793,197,776

N. B.—Certain receipts for the year 1887 in the above column are indicated by figures differing somewhat from the estimated budget of that year, because some amounts have been transferred from one account to another in the budget for 1888.

II.—*Extraordinary receipts.*		
War contributions	3,722,100	3,464,115
From perpetual deposits at the Bank of Russia	715,000	862,000
Collecting money lent to railways	1,000,000	1,625,000
Special capital become available and carried to the account of the general resources of the treasury	2,506,910	9,500,000
Sums remaining from the realization of the 4 per cent. interior loan of 1887	25,780,885	27,058,634
The budget of 1887 included besides the receipts realized by the credit operation for the construction of railways and ports		42,463,079
Total of extraordinary receipts	33,724,895	84,972,828
III.—*Receipts on interdepartmental transactions.*		
Ore and worked metals delivered to the ministers of war and marine and coming from the works and mines of the state	1,855,080	2,306,157
Food, forage, and material supplied by the ministers of war and marine to other administrations, and compensation of divers expenses made by certain administrations for the account of other services	734,507	864,921
Total of receipts on interdepartmental transactions	5,589,587	3,171,078
Grand total of receipts	888,082,110	881,341,672

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EXPENDITURES.

ORDINARY EXPENSES. — PUBLIC DEBT. — LOAN DEPARTMENT.

Loans contracted for the general wants of the state.

	Interest.	Sinking fund.	Estimated, 1888.	Actual, 1887.
Debts concluded payable in gold:				
Abroad and on limited terms	8,487,393	5,277,994	13,765,387	13,840,928
Abroad and on unlimited terms	8,852,757	2,129,511	10,982,268	10,984,452
Interior and on limited terms	1,974,289	2,286,200	4,260,480	4,260,480
Interior and on unlimited terms	.....	.....	4,000,000	4,000,000
Railroad bonds which become property of the state	816,927	46,206	863,133	863,137
Total	.....	.....	33,871,277	33,948,997
Paid to banking-houses	.....	.....	67,020	67,314
Difference in exchange	.....	.....	27,150,638	22,790,927
	.....	.....	61,088,935	56,807,238
Debts contracted in rubles (paper currency):				
Exterior and on limited terms	22,000	350,000	372,000	386,000
Exterior and on unlimited terms	2,117,961	1,877,018	3,994,979	3,994,992
Interior and on limited terms —				
(*a*) To different administrations and persons	218,222	87,547	305,769	305,769
(*b*) Five per cent. bills of the Bank of Russia	15,986,781	13,976,450	29,963,231	29,890,251
(*c*) Oriental loans	37,827,955	6,172,000	43,999,955	43,999,855
(*d*) Five per cent. loans	11,548,000	1,740,000	13,288,000	13,284,750
(*e*) Interior 4 per cent. loan	3,996,372	181,400	4,177,772	.....
(*f*) Treasury bonds	.....	.....	9,108,600	9,720,000
(*g*) Liquidation bonds for the Kingdom of Poland	1,544,361	1,639,763	3,124,124	3,184,124
Interior and on unlimited terms —				
(*a*) Ordinary and inalienable loans, and for the clergy of the Kingdom of Poland	2,339,619	804,650	3,144,269	3,144,393
(*b*) Perpetual railway annuities	.....	.....	5,000,000	5,000,000
(*c*) Four per cent. perpetual annuity bills	.....	.....	6,154,265	6,154,265
(*d*) Perpetual deposits	.....	.....	44,425	36,878
(*e*) Sums to be paid on the capital and interest of deposits with the ancient establishments of credit	208,158	1,121,198	1,329,356	1,020,000
Railway obligations which have become the property of the state	517,150	17,000	534,150	.....
Total	.....	.....	124,600,895	120,121,277
Total of the payments on loans contracted for the general wants of the state	.....	.....	185,689,830	176,928,515
Payment of railway obligations in rubles (metallic currency):				
Payments to be collected from railway companies hereafter	37,316,450	1,858,310	39,174,760	39,175,717
Paid to banking-houses	.....	.....	73,167	73,171
Difference in exchange	.....	.....	31,398,342	26,296,755
Total	.....	.....	70,646,269	65,545,643
Payment of special loans for the benefit of freed serfs	24,354,273	1,858,310	26,212,583	.....
General total	.....	.....	287,939,472	278,591,694

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RUSSIAN BUDGET.

	Estimated. *Rubles.*	Actual. *Rubles.*
Official household :		
Council and chancelry of the Empire	1,013,305	948,980
Jurisprudence attached to the council of the Empire and state printing offices	318,431	332,946
The chancelry of the committee of ministers	97,775	94,460
Private chancelry of the Emperor	508,070	507,993
Committee of requests and chancelry of the secretary for petitions addressed to H. I. M. the Emperor.		
Maintenance of the committee and chancelry	109,135	103,255
Help to the poor and education of children	73,589	78,742
Total for the official household	2,125,305	2,066,376
Synod :		
Central administration	246,789	246,789
Chapter of cathedral, consistories, and ecclesiastical regencies, archbishoprics, and bishoprics	1,441,963	1,437,493
Convents and monasteries	402,472	402,472
Town and country clergy	6,399,904	6,392,022
Subventions to establishments for the instruction of the clergy	1,744,860	1,748,060
Orthodox establishments abroad	197,251	188,122
Works of construction	275,499	265,541
Various expenses	321,739	307,643
Total for the synod	11,030,477	10,988,142
The Emperor's household :		
Endowment of Her Majesty the Empress and the august children of Their Imperial Majesties; the maintenance of the courts of their imperial highnesses the Grand Duke and Duchesses, and the institutions belonging to the ministry of the Emperor's household	10,560,000	10,560,000
Ministry of foreign affairs :		
Central administration and maintenance of the functionaries attached to the general director of the civil service in the Caucasus as well as the governor-general of Warsaw; for foreign correspondence, and the agent of the minister at Odessa	396,171	398,071
Embassies and legations	1,161,600	1,160,350
Consulates	675,778	675,778
Extraordinary expenses abroad	2,047,428	1,839,659
Various expenses	264,461	264,550
Total for the ministry of foreign affairs	4,545,438	4,338,408
Ministry of war :		
Central administration	2,300,626	2,305,627
Administration in the provinces	6,504,027	6,467,852
Technical board and schools	6,845,668	7,001,111
Board of health	3,751,712	3,760,277
Equipment and clothing	19,899,609	18,508,311
Provisions	39,112,955	40,943,751
Forage	18,757,388	19,030,116
Pay	49,088,958	48,499,554
Lodging of soldiers in barracks	13,684,796	13,890,761
Building of houses	14,461,018	15,191,437
Manufacture of arms and ammunition	10,981,869	10,799,582
Siege and field artillery	1,994,088	1,948,453
Transportation of troops, couriers, and dispatches	7,342,491	7,031,707
Maintenance of conscripts up to the time of their entering the service	2,370,600	2,295,600
Instruction of reserves	1,222,804	824,883
Topographical surveys	260,000	255,500
Rewards and help	2,539,491	2,471,155
Retained for the retreat fund	2,743.171	2,737,486
Expenses of the general government of Toorkistan	886,324	983,321
Extraordinary expenses	531,753	632,965
Expenses for the building of the Trans-Caspian line	1,938,598	1,921,747
Divers expenses	1.188,162	965,747
Total for the ministry of war	208,412,108	208,466,.51
Ministry of marine :		
Administration of ports	1,732,687	1,742,330
Rewards, help, and subvention for the educatation of children	438,468	476,040
Schools	482,350	531,602
Board of health	755,609	771,563

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RUSSIÁN BUDGET.—Continued.

Ministry of marine—Continued:	Estimated. *Rubles.*	Actual. *Rubles.*
Pay	3,572,318	3,599,413
Provisions	1,046,593	891,393
Clothing	962,344	898,733
Navigation in Russian waters	2,605,563	2,835,787
Navigation abroad	2,392,081	2,065,577
Hydrographical surveys	398,041	417,159
Naval artillery and torpedoes	3,859,000	3,650,098
Naval construction	14,816,729	14,512,838
Works and admiralties	2,210,743	2,089,029
Rent, maintenance, construction, and repairing of buildings	2,971,830	3,065,577
Missions	385,000	400,000
Divers expenses	965,068	1,300,108
Total for the ministry of marine	39,594,424	39,247,488
Ministry of finance:		
Central administration	1,628,685	1,629,674
Provincial administration	28,612,315	27,698,336
Schools	100,366	100,604
Manufacture of paper for the state	710,298	601,436
Pensions and help to the pensioners and to the widows and children	32,155,000	30,096,000
Subvention to different administrations and shareholding companies	5,364,283	4,738,804
Payments of guaranty to the railway companies	14,600,000	14,963,611
Divers indemnities, in consideration of the reduction of interest paid by the bank and of revenue which have returned to the treasury	2,557,482	2,556,982
Restitution of sums unduly received	1,400,066	1,180,066
Premiums on beet sugar exported	650,000	400,600
Recruiting	521,000	507,000
Edifices, general expenses of the organization of excise on spirits, custom-houses, and the mint	2,449,552	2,526,866
Expenses of the preceding year affected by virtue of existing orders	1,500,000	1,100,000
Advances for operation of loans for freed serfs	500,565	1,127,764
Expenses (re-imbursable)	12,339,014	11,641,614
Divers expenses	4,155,714	4,008,988
Total for the ministry of finance	109,244,340	104,877,745
Ministry of domains:		
Central administration	935,126	935,663
Administration in the provinces	7,233,347	7,108,766
Forestry, technical and agronomical establishments and schools	1,038,336	1,072,638
For the encouragement of agricultural and mineral industry	462,882	506,313
Management of forests	825,955	869,200
Land surveys	476,501	485,431
Buildings and general charges	3,516,087	2,490,272
Material manufactured at state metallic works for the ministries of war, marine, and ways of communication	2,315,655	3,453,166
Land taxes paid to the zemstows or provincial government for the lands and forests of the state	2,675,000	2,750,000
Rent of domains commuted in money	2,000,000	2,000,000
Divers expenses	775,008	713,672
Total for the ministry of domains	22,253,897	22,385,121
Ministry of the interior:		
Central administration	1,270,313	1,248,132
Censor	227,038	277,038
Provincial administration	34,692,829	34,740,041
Schools	83,128	82,928
Clergy of foreign religions	1,754,383	1,758,401
Board of health and quarantine	2,414,519	2,473,042
Penitentiary department	13,764,322	13,265,405
Location and construction of edifices	1,969,648	1,995,731
Subvention to public establishments, of assistance to towns, etc	1,260,266	1,704,691
Postal correspondence and telegraphic services	2,606,593	2,688,622
Subvention for the maintenance of posting houses	7,110,123	7,251,512
Maintenance of state building and extension of the telegraph and telephone systems	1,717,061	1,802,650

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RUSSIAN BUDGET.—Continued.

	Estimated. *Rubles.*	Actual. *Rubles.*
Ministry of the interior—Continued:		
Missions of functionaries	1,268,000	1,248,661
Miscellaneous expenses	3,310,038	3,367,354
Total of the ministry of the interior	73,448,261	73,874,208
Ministry of public instruction:		
Central administration	248,689	246,221
Schools	562,054	562,515
Universities and lyceums	3,276,601	3,387,407
Gymnasium, progymnasiums, professional schools, and other establishments of secondary instruction	9,405,611	9,567,866
District, parish, and primary schools and special establishments	4,797,862	4,438,768
Subvention for scientific instruction of professors and of teachers	1,725,175	1,750,924
Buildings	921.936	493,594
Divers expenses	443,477	388,019
Total for the ministry of public instruction	21,381,405	20,835,314
Ministry of ways of communication:		
Central administration	1,695,280	1,662,513
Provincial administration	1,486,441	1,503,187
Schools	147,757	148,845
River communications, canals, etc	4,279,720	4,525,520
Roads	5,660,414	5,522,865
Expenses of railways belonging to the State	15,337,041	11,980,653
Divers expenses	277,054	298,606
Total for the ministry of ways of communication	28,883,707	25,642,189
Ministry of justice:		
Senate and its institutions	1,841,411	1,822,525
Central administration	397,277	405,977
Government, district, ward, and special judiciary institutions	14,778,536	13,902,122
Public prosecutor's office	273,142	278,127
Surveys of Government land	1,766,580	1,761,648
Imperial School of Law	220,841	208,541
Ministry of justice—Continued:		
Missions and displacements	923,200	948,200
Costs of justice	900,000	905,000
Divers expenses	230,053	272,677
Total for the ministry of justice	21,331,022	20,505,817
Control of the Empire:		
Control of the Empire and institutions attached to it	3,391,107	3,275,583
General direction of imperial studs:		
Central administration	54,481	54,381
State studs and racing establishments of Moscow and St. Petersburg	214,881	210,279
Costs of development	734,060	731,322
Divers expenses	97,038	105,782
Total for the general direction of the imperial studs	1,100,460	1,101,764
Total	845,242,423	826,756,400
Expenses not foreseen by the budget for the extraordinary wants during the present year	6,000,000	3,000,000
Total of ordinary expenses	851,242,423	829,756,400*
Extraordinary expenses:		
For the construction of railroads and ports	34,250,100	48,414,194
Auxiliary expenses:		
Ore and worked metals delivered by the mines and works of the state to the minister of war and marine	1,855,080	2,306,157
Provisions, forage, and other supplies made to administrations and expenses made by certain administrations for the account of other departments	733,507	864,921
Total of auxiliary expenses	2,589,587	3,171,078
General total of expenses	888,082,110	881,341,672

*The expenses for the year 1887 of the different ministries are indicated by sums differing from those of the estimated budgets of the same year on account of the transfer of sums which have been expended after the examination of the budgets of the different ministries.

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ABSTRACT.

RECEIPTS.

I.—*Ordinary receipts.* 1. *Imposts.*

[Estimated.]

		Rubles.
Direct taxes		83,857,897
Indirect taxes	356,082,239	
Import duties	124,583,000	
		480,665,239
Royal imposts		29,982,089
Income from domains		49,968,617
Payment of loans issued for the benefit of the serfs		96,692,560
Divers receipts		110,601,225
Total of ordinary receipts		851,767,628

II.—*Extraordinary receipts.*

War contribution	3,722,100
Perpetual deposits at the Bank of Russia	715,000
Reimbursements to be made by the railway companies for advances made by the state	1,000,000
Sums recovered and carried to the account of the general sources of the treasury	2,506,910
Sums remaining from the realization of the 4 per cent. interior loan of 1887	25,780,885
Total of extraordinary sources	33,724,895
Auxiliary receipts	2,589,587
General total of receipts	888,082,110

EXPENSES.

I.—*Ordinary expenses.*

Loans	185,689,830
Railway obligations	70,646,269
Special laws for the benefit of freed serfs	31,603,373
Official household	2,125,305
Synod and orthodox religion	11,030,477
Ministry of the Emperor's household	10,560,000
Ministry of foreign affairs	4,545,438
Ministry of war	208,412,108
Ministry of marine	39,594,424
Ministry of finance	109,244,340
Ministry of domains	22,253,897
Ministry of the interior	73,448,261
Ministry of public instruction	21,381,405
Ministry of ways of communication	28,883,707
Ministry of justice	2e,331,022
Control of the Empire	3,392,107
General direction of the imperial studs	1,106,460
	845,242,423
Expenses not estimated in the budgets for the extraordinary wants in the running year	6,000,000
Total of ordinary expenses	851,242,423

II.—*Extraordinary expenses.*

For the construction of railways and ports	34,250,100
Auxiliary expenses	2,589,587
General total of expenses	888,081,110

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PUBLIC DEBT.

State of the public debt up to January 1, 1887.

1. DEBT WITH INTEREST.

Holland loans of 1798 and 1815	florins,	5 per cent.	16,100,100
Loan 1817	credit,	———	38,888,201
Loans of 1820 to 1855	metallic,	5 per cent.	70,289,300
	credit,		52,359,715
Loans of 1840 to 1847	credit,	4 per cent.	900,000
Loans of 1849 to 1860	£ sterling,	4½ per cent.	5,610,000
Consols of 1859	credit rubles,	4 per cent.	153,856,614
Consols of 1860	"	5 per cent.	288,377
Loan of 1859	£ sterling,	3 per cent.	2,878,500
Loan of 1859	metallic rubles,	4 per cent.	35,629,500
Loans of 1862	£ sterling,	5 per cent.	15,000,000
Obligations of the Bank of Russia, 1862	credit rubles,	"	417,208,100
Debts re-imbursable on account of liquidation of the old establishments of credit	credit rubles,	"	265,707,940
Rente of 1862	credit rubles,	5½ per cent.	70,602,000
Obligations of the Bank of Russia of 1863 to 1881	credit rubles,	5 per cent.	201,060,550
English and Holland loans of 1864	florins,	"	52,595,000
English and Holland loans of 1866	£ sterling,	"	3,567,700
Interior loans with premium of 1864 and 1866	credit rubles,	"	176,360,000
Eastern loans of 1877, 1878, and 1879	credit rubles,	"	762,437,100
Exterior of 1877	£ sterling,	"	13,346,020
Rente in gold, loan of 1883	metallic rubles,	6 per cent.	50,000,000
Rente in gold, loan of 1884	"	5 per cent.	20,000,000
Rente of 1884	credit rubles,	"	100,000,000
Perpetual deposits	"	4 per cent.	561,483
To divers administrations	"	———	4,451,523
Treasury bonds	"	4 3/7 per cent.	240,000,000

2. DEBTS WITHOUT INTEREST.

Credit notes		544,960,854
Debt of the treasury to the Bank of Russia		100,000,000
Total	Metallic rubles	211,918,800
	Credit rubles	3,144,732,457
	Florins of Holland	68,695,000
	£ sterling	40,402,220

Debt of the Kingdom of Poland.

Obligations of the converted loan of 1844	metallic rubles,	4 per cent.	16,085,962
Obligation of liquidation and debts of 1831 to 1852	credit rubles,	———	40,921,040

Railway obligations issued by the state.

Obligations of the Nicholas Railway of 1867 and 1869	francs,	4 per cent.	553,959,599
Consolidated obligation of the Russian railways of 1870 to 1884	£ sterling,	5 and 4½ per cent.	82,644,400
Consolidated obligations of Russian railways	metallic rubles,	4 per cent.	148,267,625
Obligations of railways acquired by the State	"	———	17,871,628
Grand total	Metallic rubles		394,144,015
	Credit rubles		3,185,653,497
	Holland florins		68,695,000
	£ sterling		123,046,620
	Francs		553,959,500

Equal in American currency to $2,362,376,156.

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The commerce of Russia for the past three years shows very great changes both in the value and extent of imports and exports. Wherever a decrease in imports or an increase in exports is shown it is due almost entirely to the depreciation of the currency. The value of the ruble has fallen steadily from 47 cents in 1883 to 40 cents in 1888. It will probably be better understood by American financiers if it is said that the premium on gold, which was 60 per cent. in 1883, is now about 83 per cent. The following official tables give the comparative increase and decrease in total exports and imports, together with the changes in the values received and sent from and to different countries. With a high premium on gold exports have been unduly increased and imports diminished, because the products peculiar to Russia have not advanced *pari passu* with gold, while the Russian exporter has always been favored by an increasing value on his bills of exchange against shipment.

Value of imports from principal countries.

Countries.	1884.	1885.	1886.
Germany	$113,415,510	$91,528,840	56,871,398
United Kingdom	79,411,110	60,071,148	46,248,443
Austria-Hungary	13,229,595	13,796,112	7,141,004
France	12,055,695	8,777,436	5,159,329
Turkey	8,908,740	7,456,464	7,201,369
Italy	7,582,620	4,116,192	3,247,737
United States	23,958,242	15,460,000	11,249,383
Holland	3,958,365	3,193,356	1,679,088
Belgium	6,191,355	5,183,400	3,732,958
Norway and Sweden	3,897,220	3,316,104	2,356,343
Roumania	1,440,930	1,871,748	1,034,017
Greece	1.095,210	525,336	355,104
South America			630,692
All other countries	38,531,808	26,253,484	37,314,724
Total imports	313,676,400	241,549,620	184,120,309

Value of exports to principal countries.

Countries.	1884.	1885.	1886.
United Kingdom	$98,112,885	$97,938,912	$60,476,343
Germany	117,981,465	90,476,088	50,088,028
France	25,337,535	21,518,424	12,727,739
Austria	19,919,535	17,257,860	10,636,779
Holland	30,368,235	20,668,092	15,451,513
Belgium	14,758,245	14,744,388	7,642,745
Turkey	5,305,770	7,902,936	6,967,476
Norway and Sweden	11,871,225	11,944,716	6,121,496
Italy	12,035,300	16,225,632	9,221,529
Roumania	5,091,630	2,432,064	1,686,482
Greece	3,169,175	5,711,916	3,824,896
Denmark	6,810,487	4,651,870	2,259,749
All other countries	4,314,238	5,220,758	18,140,391
Total exports	355,075,725	316,693,656	205,245,166

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The value of exports to and imports from the United States, although given in the official tables, are totally unreliable, as much intended for the United States goes to the account of the United Kingdom and Germany, because they are transported through these countries first and are put down as belonging to their commerce. The official figures give the exports from Russia to the United States for the year 1886 as $166,250, whereas at the St. Petersburg consulate-general alone invoices to the amount of $861,607 were certified.

No completed comparison of the exports and imports for the years 1886 and 1887 have been prepared. For the eleven months ending November 30, 1887, the value of movement was (taking the ruble at 50 cents American currency) as follows:

	Exports.		Imports.	
	1887.	1886.	1887.	1886.
Articles of food	$160,600,500	$116,985,000	$23,977,000	$41,093,000
Raw material used in manufactures	87,128,500	72,522,000	102,336,000	103,126,000
Animals	5,520,000	5,187,500	237,000	288,500
Manufactured articles	6,045,500	5,634,500	26,237,000	32,818,500
Total	259,300,500	200,329,000	152,787,000	178,226,500

Fleet in 1883.

Description of vessels.	Number.	Cannons.	Tonnage.	Horse-power.
In the Baltic.				
Iron-clad steamers	32	360	122,500	10,910
Armed steamers	39	335	60,630	15,227
Transport steamers	59	.....	17,415	4,355
Sailing-vessels	8	.....	2,610	.....
Torpedo boats	95	.....	2,316	3,860
In the Black Sea.				
Iron-clad steamers	7	61	37,241	5,780
Armed steamers	27	105	25,732	3,440
Transport steamers	59	.....	6,520	2,100
Torpedo boats	16	.....	522	760
In the Caspian Sea.				
Armed steamers	12	26	4,215	845
Steamers	4	.....	720	.....
In the Lake of Aral.				
Armed steamers	6	13	759	227
In Siberia.				
Armed steamers	8	42	3,783	86c
Transport steamers	13	.....	537	247
Torpedo boats	6	.....	144	240
Total	391	942	185,644	48,851

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Table giving the flag, tonnage, class, and crews of vessels entering Russian ports for the year ending January 1, 1887.

Flag.	Sailing vessels.	Tonnage.	Steamers.	Tonnage.	Total crew.
Russian	712	68,422	501	32,882	21,530
Norwegian and Swedish	573	76,265	810	125,257	14,209
Danish	419	22,147	456	152,945	9,475
German	474	50,595	950	224,133	16,824
British	95	10,226	2,551	1,198,143	51,903
French	11	979	36	27,558	2,062
Italian	155	28,809	49	27,976	3,817
Austrian	48	11,497	473	120,717	11,156
Grecian	564	71,914	113	45,785	7,086
Turkish	270	11,598	.....	.....	1,983
Dutch	137	18,736	47	16,747	1,933
Belgian	.....	.....	21	12,679	584
United States	1	587	.....	.....	15
Others	13	1,172	8	4,519	256
Total	3,472	372,947	6,015	1,989,338	142,571

Table giving the flag, tonnage, class, and crew of vessels clearing from Russian ports for the year ending January 1, 1887.

Flag.	Sailing vessels.	Tonnage.	Steamers.	Tonnage.	Total crew.
Russian	810	24,505	432	45,815	19,986
Norwegian and Swedish	575	36,195	710	125,168	13,592
Danish	319	22,147	449	150,561	9,323
German	473	50,456	954	226,161	16,917
British	92	9,706	2,555	1,194,970	51,950
French	11	916	35	26,835	1,990
Italian	156	29,008	50	28,490	3,870
Austrian	49	11,621	472	121,248	11,196
Grecian	558	71,093	114	46,676	7,079
Turkish	267	11,520	.....	.....	1,929
Dutch	138	18,965	46	16,404	1,910
Belgian	.....	.....	22	13,188	544
Others	13	1,172	8	4,519	256
Total	3,461	287,304	5,847	2,000,035	140,840

MISCELLANEOUS SUBJECTS.

It is not necessary to go very far afield to find the causes which have led to the long-continued commercial and financial depression in Russia. A depression which must necessarily last as long as the present conditions keep the economic development of the country in check. One sees a country large, rich, and populous, replete with all that constitutes wealth, with no money in its treasury and its currency at an enormous discount, its agriculture depressed, manufactures languishing, mining interests reaching a lower level each year, railroads heavily burdened, an entire absence of prosperity in every industrial branch, and taxation, both direct and indirect, laying heavier burdens each year upon a people abnormally unable to bear them.

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Take the railroads in Russia as an example. All of them are built upon strategic lines, without the slightest regard to the commercial or agricultural necessities of the country. As a natural sequence they are unable to pay their obligations, and as for dividends that is a thing rarely dreamed of. If they are ever prosperous it is in spite of the fact that they were ever constructed with any other idea than that of transporting men and material of war rapidly. In 1886 the total length of railways in Russia was 16,144 miles, of which 2,132 miles were opened by the state. The capital invested in these enterprises amounted in 1886 to 2,855,200,824 rubles and 56 copecks, divided as follows:

	Metallic rubles.	Paper rubles.
Shares	286,999,227.64	153,376,335.25
Bonds	1,152,523,019.11	255,636,669.83
Total	1,439,522,246.75	408,013,005.03

In converting the metallic capital into paper rubles at the average exchange of 1886 (at the rate of 1.70 ruble paper currency for one metallic ruble), the grand total capital invested is 2,855,200,824.56 paper rubles, equal at the present value of the ruble (40 cents to the dollar) to $1,142,080,329.82.

Within the past five years there has been an increase of only 450 miles annually, and Russia to-day occupies the last place among the civilized states in the number of miles of railway to population. All that part of the Empire to the north, containing about 10,000,000 people, is absolutely without railways except where the Nicholas, Yaroslaw-Vologda, and Perm-Tumene lines touch it.

Siberia with its 4,000,000 inhabitants, with its boundless wealth of soil and minerals, has not one mile, with the exception of the short line to Tumene. In the country east of the Volga it is the same thing, save the line to Orenbourg. Notwithstanding all this, the nation supports the charges imposed in favor of the railway lines—charges amounting to one-tenth of the total imposts, direct and indirect.

The average distance of centers of production from the nearest railway in Belgium is about 2 miles; in England, about 3⅓ miles; in the United States of North America, 3⅔ miles (and this in an agricultural country such as the Russian Empire); in the whole of the great American continent, 13 miles; in Russia, 240 miles. In the United States, where the population is nearly half that of Russia, and whose territory is two and one-half times smaller than the Russian Empire, there are over 133,333 miles of railway, while there are only 18,000 miles of railway in Russia.

In order to put Russia on the same footing with North America, she should have 334,000 miles more of railway according to area, or 267,000 miles according to population. The railways which have been constructed during the past few years have cost from $30,000 to $40,000 per mile, against $24,000 a mile for those opened some ten years ago.

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An idea may be formed of the outlook for the railway system in this country by the following table, showing what proportion of the gross receipts are absorbed by the ordinary expenses, and still the transportation charges are at least 40 per cent. higher than in America:

Table showing the percentage of working expenses to gross receipts.

	Percentage.		Percentage.
Warsaw-Bromberg	80.64	Orenbourg	67.04
Riajsk-Viasmk	86.22	Morshchansk-Syzrane	82.09
Vladicaucasus	94.19	Mitan	80.44
Oural	83.30	Dunaburg-Vitebsk	73.28
Donets	95.81	Orel-Griazy	70.92
Ivangarod-Dombroff	111.22	Fastow	61.90
Warsaw-Terespol	75.08	Otel-Vitebsk	65.88
Vistula	84.44	Riajsk-Morschansk	68.05
Baltic	88.90	Riga-Dunaburg	64.43
Libau-Romney	83.95	Trans-Caucasian	61.10
Novotorjok	65.05	Southwest	65.57
Lozoff-Sevastopol	68.04	Moscow-Brest	66.96

MOVEMENT OF POPULATION.

The following table gives the number of marriages, births, and deaths in Russia in Europe, Poland, Finland, and Siberia for the years during which the last statistics were prepared:

Countries.	Marriages.	Births.	Deaths.
Russia in Europe (1883)	732,750	3,980,093	2,879,265
Poland (1880)	62,771	294,021	189,514
Finland (1884)	16,585	80,411	47,468
Siberia (1884)	32,952	180,802	131,793

Taking the population for the same years we arrive at the following percentage of increase in population:

Countries.	Population.	Increase of births over deaths.	Percentage.
Russia in Europe (1883)	78,269,114	1,101,828	1.46
Poland (1880)	7,245,419	104,507	1.42
Finland (1884)	2,293,358	32,943	1.49
Siberia (1884)	3,947,903	49,009	1,24

The ratio of illegitimate to legitimate births in Russia in Europe is as follows: Legitimate, 3,880,857; illegitimate, 99,236; showing that 2.49 per cent. of the births in Russia in Europe were illegitimate.

The large and marked growth in population (about 8,000,000 in six years) is not due to natural increase or to immigration, but to military conquest.

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As for immigration and emigration, very few people of other nationalities make Russia their permanent home. Foreigners, unless they bring something likely to be of great service to the Empire are not welcomed very cordially by the Government or people, and the policy of the Government has been to exclude certain classes of foreigners from Russia altogether, especially from her western frontier. "Russia is for Russians," and unless a man can make himself extremely useful to Russia and is in thorough sympathy with her habits and customs, he will find that they are more apt "to speed the parting than welcome the coming guest."

As no Russian can cross the frontier or change his residence from town to town or from house to house without permission of the police, it follows that emigration must be very restricted. In fact nearly all of it is involuntary, and as a rule emigrants are not of a very desirable class. If the Government objects to a person he is very easily sent across the frontier. But it is very questionable whether any large portion of the middle or lower class of Russians desire to change their nationality. The conditions surrounding the classes emigrating from central and western Europe to other lands differ materially from those which appertain to Russia.

1. Population has not reached that degree of congestion which renders it necessary that a portion should seek other homes. Land is cheap, as cheap as it is in America or Oceanica, and as fertile as the plains of Illinois or the valley of the Mississippi. In some parts of Siberia a Russian wishing to cultivate land can buy it of the Government at from 50 cents to $1 per acre.

2. Labor of every kind is in demand, and if the prices obtained are much lower than in other countries the purchasing power of the wages received for the absolute necessaries of life is commensurate.

3. The Russian mujik, or peasant, is, as a rule, contented with his lot; no one would imagine this statement to be true, looking at him with his surroundings. Apparently bound to the soil (*adscriptus glebæ*), living in a hovel, sustaining life on black bread and salted cucumbers, with few amusements and a long life of toil, one would think he would, from some innate consciousness, revolt from such a system and be ready to fly anywhere to escape from such a thraldom; but, on the contrary, he has no knowledge of anything better, his ancestors have lived and died thus in the very estate where he has his home, he is contented with his surroundings, he desires no elevation, no change, except to make a few extra copecks, which he will spend freely for tea and sugar, or vodka. He is perfectly loyal to the Czar and to the authorities. It may sicken the heart of a philanthropist to see (what he would term) squalor and ignorance content with its lot, but alas the facts exist. Education alone will bring about any change, and I am glad to report the progress of this, the greatest aid to the material advancement of a nation. Below I give the statistics of the various educational institutions of Russia for the year 1883:

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PUBLIC SCHOOLS.

The following table shows the number of schools and scholars in attendance upon the same in Russia in Europe, Central Asia, Siberia, Poland, Finland, and the Caucasus:

Schools.	No. of schools.	Male scholars.	Female scholars.	Scholars not classed.	Total scholars.
Public schools	39,194	1,691,873	600,350	147,911	2,440,134
Common schools, primary and elementary	38,729	1,625,418	595,251	147,911	2,368,550
Common schools under minister of public instruction	1,034	133,449	94,547	.....	227,996
Private schools (common)	126	6,860	10,078	.....	16,938

UNIVERSITIES IN RUSSIA.

There are nine universities in Russia, viz, at St. Petersburg, Moscow, Kharkov, Odessa, Kazan, Kieff, Dorpat, Warsaw, and Helsingfors, in Finland. The number of scholars attending these universities is 11,848, of whom those receiving instruction in theology number 186; in history and philology, 1,096; in law, 3,100; in mathematics, 1,444; in natural sciences, 1,883; in medicine, 4,782; in oriental languages, 57.

There are three superior classes for women, viz, at Kieff, with 337 students; at Moscow, with 200 students; and at St. Petersburg, with 915 students.

Technical schools in the Russian Empire number 435, of which 403 are for males, with 54,040 students, and 32 for females, with 3,657 students.

The percentage of increase in schools from 1874 to 1883 was 19.58 per cent. The increase in the attendance of male scholars was 40.72 per cent., and of female scholars 72.28 per cent.

PRICES OF FOOD, ETC.

It is almost impossible to give the prices of labor and food which would not be misleading. What is true about St. Petersburg and Moscow is thoroughly untrue at Kharkov and Tomsk.

On account of the high duties on importations whatever enters Russia from a foreign country is enormously expensive. English woolens, dry goods, iron, steel, and hardware, French and Belgian silks and laces, Parisian gloves and novelties, German manufactures, American machinery and agricultural implements, and canned goods are all of them sold at very high prices. But whatever is produced on the soil of Russia is cheap, and at some points beyond the comprehension of an American buyer. For example, beef, pork, and mutton, costing in the provinces 1¼ cents per pound, would bring 5½ cents per pound in St. Petersburg and Moscow; butter in the province of Kharkov is worth 10 cents per pound, and in the cities 24 cents;

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wood, which is sold at $2 per 115 cubic feet, brings $6.65 at Odessa; eggs are 24 cents per 100 in the country places against $1.60 in St. Petersburg, and the same comparative prices prevail for all domestic products.

POST-OFFICES, TELEGRAPH, ETC.

The following statement shows the number of post-offices and the business transacted by the same in the years 1885–'86:

Number of post-offices	4,830
Number of simple letters passed through the same	139,103,194
Postal-cards	11,642,962
Registered letters	12,030,224
Valuable letters (containing, as declared, $254,517,459)	10,423,649
Newspapers	102,515,895
Sample packages	17,503,609
Total receipts	$13,222,544

The telegraph lines in Russia are owned and operated by the Government. In the year 1884 the working of the telegraph lines showed:

Number of miles of telegraph wire and cables in operation	155,295
Number of officers	3,325
Number of dispatches	10,471,084
Total receipts	$7,074,339
Expenses	6,546,306
Profits	528,033

DEATH-RATE IN RUSSIA.

The death-rate in Russia has always attracted the attention of sanitary reformers throughout the world. At one period St. Petersburg was reckoned as fourth in the list of cities according to death-rate. This in some measure is growing less each year. Taking its population as officially declared, we have population, 929,094; number of deaths, 34,424; number of deaths in each thousand, 36. This is still high compared with American and European cities; but as compared with the rate some twenty years ago (40 to the 1,000), it shows a gradual improvement. In the provinces the rate is still higher, particularly among infants, owing to the lack of medical attendance, proper care, and nursing. The mortality of children between the ages of from one month and two years is extraordinary, but the Russian people are a strong, vigorous, and prolific race, and despite this death-rate among the younger children census reports show a gain each year, as remarked above.

According to the annual register of 1888 (issued since Table A was prepared) the population of the Empire in 1885 was as follows:

Russia in Europe	81,725,185
Kingdom of Poland	7,960,304
Duchy of Finland	2,176,421
Caucasus	7,284,547
Siberia	4,313,680
Central Asia	5,327,098
Total	108,787,235

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BUSINESS PECULIARITIES.

The business peculiarities of the Russians betray their Asiatic origin. The universal system of "chaffering" is misleading to one not familiar with their habits. No Russian merchant, if even he be of the first guild, ever names at once the price at which he intends to buy or sell. Hence in dealing with them the stranger, who is unused to this practice and is accustomed to see fixed prices in all mercantile communities, is very apt to be taken in, to the surprise as well as to the marked profit of the Russian negotiator. In every large city or town the "Eastern Bazar" (an aggregation of small shops and open places) is a prominent feature. They are tenanted by small merchants or dealers, and it is in that locality that the system of bargaining holds high revel. You are asked $2 for an article. If you decline and start to leave the shop you are at once asked, "What will you give?" Accustomed to this manner of dealing, you offer 50 cents, and are at once met with a counter offer of the article at $1.50. Finally, much depending on the indifference manifested, the article is sold at $1, or perhaps at your original offer of 50 cents.

Long credit between merchants of standing is the rule. A dealer buying a bill of goods as a rule gives no note until nine months have elapsed. At the end of nine months he gives his note or draft upon some banking-house payable at ninety days' sight. In the retail trade cash or its equivalent (thirty days) is almost an invariable rule. At the great Russian fair at Nijni-Novgorod merchants are found in great numbers paying for the goods purchased one year before and buying their stock on a twelve-months' credit.

A great deal of money is thrown away annually by American houses sending out their price-lists and illustrated catalogues. I have endeavored to represent to correspondents the fatuity of such efforts.

There is a great opening in Russia for American goods. They occupy a high vantage ground among consumers and buyers, but as a rule the Russians want to see samples of the goods or the goods themselves. They wish to bargain for them. They are slow to adopt any change, and unless they are convinced by ocular demonstration that the article offered them possesses great advantages they will not take it up. If several houses engaged in different lines of goods would combine and send some energetic pushing representative to open a store or warehouse in Moscow, Riga, or any other center of trade, at the same time supplying him with samples of their product, the cost to either of them would not be very great, and the trade which would flow from such an experiment would surprise the originators of the enterprise. There are vast probabilities for the extension and development of American trade with Russia. There is no other country so sure of yielding a rich harvest to the American exporter. In some branches these goods stand ahead of those of any other nation. But it is useless to flood Russia with circulars and catalogues. They go into the waste-basket as fast as they are received. The goods must be presented by samples, and they must be pushed with American vigor and energy. It is equally useless to confer agencies upon

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Russian merchants, no matter how able and honest they may be. "Drumming," to quote the American term, is foreign to their ideas, their training, their habits, their instincts. The work can be done only by men of American business training who are on the spot. These conditions being fulfilled a vast trade with a grand empire, despite the high import duties, is opened up for our merchants and manufacturers.

APPENDIX.

The Russian central statistical committee, under the direction of Mr. N. Troïnitsky, has issued a complete work giving the general movement of population, manufactures, and commerce in Russia in Europe and Poland for the years 1884 and 1885.

It is too voluminous a work to translate in its entirety, and I therefore beg to forward, as supplementary to my report upon the trade and industries of Russia, a condensed statement of the main facts. Any apparent differences in detail from former reports sent to the Department must be attributed to fundamental errors originating with the Russian bureau of statistics, as every table in each report is taken from published records. As all statistical information is provided by the Government, the figures given below are supposed to be not only the latest but the most authentic, and it is believed that all errors arising from incomplete data, as well as from clerical errors, have been eliminated or corrected.

The population of the Empire at this date is estimated at 109,000,000 inhabitants of both sexes, the males being largely in excess of the females. The number of inhabitants to the square verst (four-ninths of a square mile) is as follows: 19.3 inhabitants for the fifty provinces of Russia in Europe; 71.4 for Poland: 17.9 for the Caucasus; 0.4 for Siberia; 1.8 for Central Asia, and 7.6 for Finland.

There are 1,300 towns and 324,000 other inhabited localities. There are 4 cities having over 200,000 inhabitants, 9 with over 100,000, and 23 towns having over 50,000 inhabitants.

The annual number of births for the years 1882–'85 was 3,400,000, of which 2.6 per cent. were illegitimate; the number of deaths 2,500,000. The excess of births over deaths was consequently about 900,000.

In 1885 there were 867 hospitals in cities and towns, containing 47,000 beds, and 800 rural hospitals, with 11,000 beds. The lunatic asylums (77 in number, with 15,000 pensioners) are not comprised in these figures. The mortality in these latter institutions was 11 per cent. of the inmates. There were 2,145 apothecaries, who have furnished medicines costing over $5,000,000 (representing 13,500,000 doctors' prescriptions), so that the average expense of this service per capita was $5.70; the average price of each prescription being 38 cents. Over 11,000,000 patients applied for medical assistance. The number of persons vaccinated amounted to 2,300,000; it is estimated there is one lunatic to every 6,000 inhabitants.

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Typhus fever holds the first place among infectious diseases — there being in one year 162,000 cases, with 10 per cent mortality. The maximum of mortality resulted from diphtheria (35 per cent.) and hydrophobia (52 per cent.); but these sanitary statistics include only Russia in Europe and Poland, and, the statistics being very incomplete, the above figures are compiled solely from registered cases.

Of the total number (46,264) of violent and sudden deaths, 35,000 were males, showing that men are three times more exposed to accidents than women. In cases of suicides the percentage is still more desirable; out of 2,661 suicides only 636 were women.

One million foreigners entered Russia in 1885, of which 733,000 were men. During the same year 670,000 males left Russia out of a total of 921,500. For every 100 males entering 92.9 per cent. have emigrated; for 100 foreigners arriving 81.7 per cent. have departed. The number of travelers and tourists entering Russia holding passports was 321,000, of which 61,000 were Russians. Among the departures holding passports (272,000) 71,000 were Russians; all the others had tickets of short duration. On January 1, 1886, the number of prisoners of all classes amounted to 101,000, of which 8,000 were women. The number among these prisoners requiring medical treatment during the year 1885 was 78,000, and the number of deaths 2,699.

Out of 853,000 young men arriving at the age subject to military duty only 228,000 (of which 74 per cent. were of Russian nationality) were enlisted. The number of those rejected for physical disability and diseases was 62,000. Among those selected for the army 26.6 per cent. had passed through schools of education and 29.7 per cent. of these conscripts were married.

The 52,000 fires which took place during the year occasioned a loss of $43,500,000 and 1,129 deaths. Seventeen fire insurance companies, with a capital of $13,000,000, constitute the only protection against losses of this character. The total sum of insurance effected for the year amounted to $2,754,000,000. The said companies have paid losses during the year amounting to $12,000,000. To this sum must be added $7,750,000 paid by the mutual insurance companies of the "zemstvos," or provincial municipal bodies.

The production of 83,182 manufacturing establishments, with 1,100,000 laborers, was valued at $653,500,000. The average product per laborer for the year in the fifty provinces of Russia in Europe was $550, and in Poland $650. The Russian factories employ, on an average, 16 laborers in each manufactory; the Polish factories only 7, which indicates that manual labor is more utilized in the former than in the latter.

The 2,377 distilleries have produced 109,200,000 gallons of alcohol; 11.3 per cent. of which was exported. The average consumption in Russia was 1.02 gallons per inhabitant, and in Poland 3 quarts; 1,870 breweries

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supplied 91,000,000 gallons of beer. There were 5,587 depots selling alcohol wholesale, and 556 selling beer.

There were 132,000 retail establishments selling brandy and vodka, and 7,734 selling beer.

The number of sugar refineries was 245, with a production of 765,320,000 pounds of sugar.

Tobacco was cultivated on an area of 167,000 acres, which produced 115,200,000 pounds of tobacco, turned over to 394 factories. Deducting 9,000,000 pounds for export there still remained for consumption 1.14 pounds per inhabitant.

The receipts of the state amounted to $418,500,000, of which only $90,000,000 arose from direct taxes. The debt of the state was $2,325,000,000, with annual payments for interest and sinking fund, amounting to $131,000,000, giving as a result for each inhabitant $3.98 income, $21.88 debt, and $1.23 interest and sinking fund.

The operations of the Bank of Russia amounted to $228,250,000, those of the rural banks to $12,000,000, borrowed by the peasants for the acquisition of 1,570,000 acres of land. The free serfs have bought 92,000,000 acres of land for the sum of $428,500,000. The municipal receipts in 1870 were $8,400,000. In 1884 they were $21,000,000. The expenses during the same time rose from $9,500,000 to $23,000,000. Consequently the receipts and expenses have been multiplied two and one-half times. The zemstvos have received $20,000,000 (instead of $31,350,000), and have spent $19,000,000. The greatest expenditures were as follows: Sanitary purposes or public health, 22.7 per cent: public instruction, 16.6 per cent; the maintenance of public buildings, 14.7 per cent; local administration, 13.4 per cent. The peasants spent in 1881 $7,400,000 for the bailiwick and $8,700,000 for the villages. The capital invested in railways amounted in 1885 to $1,400,000,000. The average gross receipts for three years (1883–'85) has been $165,500,000, the expenses $72,000,000, leaving a net income of $43,700,000 for interest and dividends. The extension of postal routes was 112,000 miles, and 17,000 men were employed at 4,830 offices. The number of postal missives was 303,000,000. The revenue from postage-stamps was $4,000,000. The total receipts of the post were $8,300,000. The total expenses of the post were $8,700,000. The number of telegrams sent reached 11,000,000. There were only 3,060 subscribers to the telephone system.

The commercial fleet was composed of 2,992 vessels, of which 360 were steamers. These vessels were distributed as follows: 687 in the Baltic; 246 in the White Sea; 732 in the Black Sea; 517 in the Sea of Azov; 789 in the Caspian, and 21 in the Pacific. During the period of 1882–'86 there was an annual export of $268,350,000, and imports to $227,350,000, over the European frontier, showing that for every $50 exported there was an import valued at $42.50.

The average value of the metallic ruble during this period was 157.66 copecks, paper currency.

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The number of establishments for public instruction amounted to 41,492, with 2,500,000 scholars, of which 639,000 were females. There were 8 universities with 13,000 students; 476 schools for girls, with 97,500 scholars, and 561 schools for boys, with 131,000 scholars. There were 402 special schools for men, with 56,000 scholars, and 41 for women, with 3,500 scholars; 40,010 preliminary schools, with 2,204,000 scholars of both sexes.

The fifty provinces of Russia in Europe contain 38,531 orthodox churches. The Russian clergy was composed of 44,559 active priests and 6,442 monks. There were 1,287 Catholic churches, with 1,453 officiating priests, while there were only 708 Protestant churches, with 471 pastors; 37 Armenian churches of the Gregorian rite, with 84 priests; 349 synagogues; and 3,957 mosques, with 7,877 servitors.

In addition to the above statistics there were in the same fifty provinces of Russia in Europe 474 typographic offices, 270 lithographic offices, 425 typo-lithographic establishments, 710 photographic establishments, 509 circulating libraries, and 545 national libraries.

The crops of the fifty provinces of Russia in Europe showed 1,728,000,000, bushels of cereals of all kind, of which 70.5 per cent. were produced by peasant labor. Deducting all exports, and making a proper allowance for seed, there remained 13 bushels per capita for consumption.—ST. PETERSBURG, *May 14, 1888.*

CHARLTON H. WAY.
Consul-General.

RESOURCES AND TRADE RELATIONS OF JAPAN.

In the preparation of this report I have carefully consulted every trustworthy source of information at my command. Whenever I have thought that the language of others would convey a more intelligent knowledge of the subjects I have adopted it, and acknowledge in the outset my indebtedness and obligation.*

JAPAN.

The Empire of Japan extends from 24° to 50° 41′ north latitude, and from 124° to 156° 38′ east longitude. Exclusive of the four main islands it embraces over three thousand smaller ones. Many of these are mere barren rocks, uninhabited and uncultivated. Others, again, are of considerable size and exceedingly fertile, particularly the islets in the "inland sea" lying between the main island on the north and the islands of Shikoku and Kiusiu on the south.

For geographical purposes the Empire is divided into four islands—Hondo, the central and most important territory; Kiushiu, "the nine provinces," the southwestern island; Shikoku, "the four states," the southern island, and

* Specially to the London and China Express as regards finances, military affairs, railways, etc.

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Yezo, the most northerly and least developed. The former three islands are subdivided into eight large roads containing 66 provinces, and the latter (Yezo) is divided into 11 provinces. Administratively there exists a division into 3 fu and 41 ken, or provinces.

AREA AND POPULATION.

The total area of Japan is 148,456 square miles, with a population of 37,868,987, viz, 19,157,872 males and 18,711,110 females. The number of houses is 7,710,221, and the population is divided as follows: Imperial family, 38; nobles, 3,350; knights, formerly retainers of the daimios, 1,931,204; common people, 35,934,395.

The number of foreigners residing in Japan, exclusive of Chinese, is about 2,100.

The following table gives the statistics of the births and deaths for the five years 1880–'84:

Year.	Births.	Deaths.	Excess of Births.
1880	883,584	603,055	208,529
1881	941,344	686,064	255,279
1882	922,715	668,342	254,373
1883	1,104,989	676,369	328,620
1884	975,252	705,226	270,026

SYSTEM OF GOVERNMENT

Is that of an absolute monarchy. The sovereign bears the name of Supreme Lord, or Emperor; but the appellation by which he is generally known in foreign countries is the ancient title of Mikado. The exercise of the power of the Emperor is now controlled to a great extent by public opinion.

The Emperor himself, in 1875, when the senate and supreme judicial tribunal were founded, solemnly declared his earnest desire to have a constitutional system of government. Since that time the tendency has been toward such a system of government. The great council, in which the Emperor himself presides (though his place is taken by the minister president on ordinary occasions), is the supreme executive as well as the highest legislative body. It is composed of the minister president, the minister of foreign affairs, the minister of the interior, the minister of finance, the minister of war, the minister of the navy, the minister of justice, the minister of education, the minister of agriculture and commerce, and the minister of communications. Besides these there is the minister of the imperial household. There is also a body of court counselors, which is called together on special occasions, and presided over by the keeper of the great and privy seal, to deliberate on important matters relating to the imperial household. At present there exists no complete severance between the legislative and executive sections of the Government.

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The most important body in the Government is the senate, established in 1875. It deliberates on legislative matters, but its decisions are subject to confirmation by the cabinet and sanction by the Emperor.

The number of senators is unlimited. In 1886 there were sixty-nine. They are chosen from those who have rendered signal service to the state. Another body, council of state, created in 1881, has the function of initiating and framing bills and discussing matters transmitted by the executive department, subject to deliberation in the senate. It also hears and decides cases relating to administration. The local administration in the provinces is in the hands of governors — one of them residing in each of the forty-four districts (3 fu and 41 ken) into which Japan is divided. Each district is subdivided into cities (ku) and counties (gun), each with its chief magistrate who manages local affairs.

A system of justice based on modern jurisprudence has been established, and three hundred courts of various grades have been distributed over the country.

RELIGION.

The old edicts against Christianity are no longer in force. Although the present Emperor is favorable to the Shinto faith, religious worship is free in Japan. The religious beliefs of the Japanese people may be divided under two heads — the Shinto and the Buddhist. The former was the religion of the Japanese before the introduction of Buddhism in 552. It contains no moral code, and it has been asserted by a native writer of high authority on the subject that in Japan there was no necessity for any system of morals, as every Japanese acted right if he only consulted his heart. There are now in Japan about 15,000 Shinto priests. Buddhism, however, soon gained complete ascendancy, and notwithstanding the blow its progress received by the introduction of western civilization and the liberal policy of the Emperor, it numbers at present 75,000 priests. The progress of Christianity in Japan is shown by the following table:

	1885.	1886.
Number of missionaries	183	215
Organized churches	168	193
Churches wholly self-sustaining	57	64
Membership	11,678	14,710

In addition to the efforts being made by the missionaries to propagate the doctrines of Christianity through the influence of the Christian churches, they have established a number of schools for this purpose, which are largely attended, and the success of which appears from the following table:

	1885.	1886.
Total scholars	4,324	4,805
Sunday schools	150	239
Sunday-school scholars	7,019	9,889
Theological schools	9	11
Theological students	102	169
Native ministers (Japanese)	60	93

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Contributions by native Christians for the support of the above schools were, 1885, 24,144 yen; 1886, 26,866 yen.

EDUCATION

Is making greater progress than before the revolution which made Japan a monarchy. In order to facilitate the acquirement of foreign languages the Government has engaged many professors from eastern countries, and also sent, at the public expense, a large number of students to America and Europe. An association called the Romajikai, for promoting the adoption of the Roman alphabet in Japan, was formed in 1885, and is making progress. The following are the latest official educational statistics:

Schools.	Number.	Professors or teachers.			Students or pupils.		
		Male.	Female.	Total.	Male.	Female.	Total.
Elementary	29,233	92,706	6,410	97,316	2,219,375	1,013,851	3,233,226
High	142	1,083	50	1,133	15,100	590	15,690
Normal	65	661	53	714	6,375	859	7,270
Universities	1	104	.....	194	1,880	.....	1,880
Technical	103	583	.....	583	8,892	21	8,913
Others	1,326	1,927	286	2,213	47,434	10,572	58,006

Of the total universities and schools, 9 are maintained by the central Government, 29,008 by the local government, 1,853 by private funds. The school age is from six to fourteen years, and the average attendance, 3,129,073, or 50.76 per cent. Attendance has been made compulsory.

The publication and sale of books and newspapers in a country are indicative of its educational progress, and there were, during the past year, over 6,700 new books published in Japan, and more than 66,000 copies of newspapers published and sold. From late returns it appears that during the five years ending on December 31, 1885, the aggregate number of newspapers printed in Japan bore the following ratio per 1,000 of population: 1881, 49; 1882, 45; 1883, 42; 1884, 45; 1885, 51.

In connection with the subject of education the following table will show the freedom enjoyed by the press and public lecturers in Japan:

	Newspapers	
	Suspended.	Suppressed.
1881	58	
1882	70	12
1883	52	4
1884	38	4
1885	25	

During the current year there have been several suspensions, mostly of papers that have criticized the policy of the Government. In Japan, when assemblies or meetings are to be addressed on political subjects, the speaker is required to first submit a synopsis of his address to the local authority of the place, and he must strictly confine himself to it. If anything objectionable appears in the synopsis it is suppressed, and during the delivery of

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the address any police officer present has the right to stop the speaker and forbid him to proceed. The following table will show how this power has been exercised:

	Subjects allowed.	Prohibited.	Number of meetings.	Speakers.	Meetings dispersed.	Speeches prohibited.
1881	12,010	.....	.....	.....	113	40
1882	13,212	1,082	1,817	7,675	282	92
1883	7,199	748	1,037	4,692	139	56
1884	4,552	694	681	2,396	117	45
1885	2,845	270	444	1,263	66	1

FINANCES.

In connection with the subjects referred to under the general heading—Japan—there are none more clearly allied with the Government than the subject of finance. Much has been done during the last few years to improve the condition of the finances of Japan. The redemption of paper money alone, at one time as unstable as water, which has taken place, has restored the credit of the Government. It must be remembered that until the restoration of the present Government, nineteen years ago, feudalism prevailed in Japan, and about three hundred different lords held possession of the soil of the country, exercising therein their territorial rights.

The result of this was that they ruled the land, each of them with his own autonomic government, following his own bent in his particular locality. More especially were there confusion and obscurity in financial matters. Just after the restoration, when the central Government became established and undertook the general direction of every kind of state affairs, the basis of a financial policy was laid down. But in consequence of the war that raged in the Empire the finances were thrown into a state of the utmost embarrassment, and the Government had no resource than to issue paper currency in order to meet the great calls which suddenly devolved upon it. At first the amount of this paper money issued was only 48,000,000 yen, but both internal and external necessities have jointly compelled the Government to increase the amount of issue to 120,927,000 yen. The Government, however, has since made every possible effort to reduce the amount of this issue, the result of which is that the amount of paper money was in the eighteenth fiscal year (July 1, 1885, to March, 1886) decreased to 76,934,727 yen. The great fluctuations in the value of the satsu in the intervening space are well known in business circles.

There are in Japan no less than one hundred and thirty-eight national banks, carrying on business according to the general regulation of the national banks issued by the Government. These regulations are drawn up on lines to the national banks which have been created in America. However, in Japan their banking operation was so restricted to particular localities that correspondence between them was scarcely ever effected. The result of

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this was to confine the circulation of money to within very narrow limits, thereby causing the rate of interest to rise and produce most unfavorable effects upon the financial condition of the people. Consequently, in 1882, the Bank of Japan was established, after careful examination of the different banking systems of Europe and America, with the view of making it the focus of all the different banks throughout the whole Empire by entering into regular relations and correspondence with each of them. Thus the Bank of Japan opened the way of communication between all other banks, and has proved to be a smooth-working machinery for putting money into circulation wherever wanted. This Bank of Japan is a chartered stock company with a capital of 10,000,000 yen. It is divided into five million shares, each of 200 yen. Its business is to discount promissory notes in order to promote the circulation of money; to lend money; to act as the disbursing agent of the national treasury; to discount foreign bills of exchange, a method which is employed for paying the expenses of materials purchased abroad, expenses of legations, etc.; and to transact the business connected with the purchase and sale of gold and silver bullion. The Bank of Japan has to fulfill a great duty to both the Government and the public, and by way of compensation the Government has vested the bank with the privilege of issuing its notes payable in silver on demand, a privilege which naturally has a good effect on it as a dividend-paying establishment. These notes were issued in May, 1885, and it is the intention of the Government, after the redemption of all its paper currency and different national-bank notes, to allow the notes of the Bank of Japan alone to circulate, much in the same manner as Bank of England notes in England. The bank holds a reserve in gold and silver bullion to the amount of notes so issued.

The aggregate capital of all the national banks in the Empire is 44,456,100 yen. They had to purchase Government bonds to the extent of 8 per cent. of their capital and deposit them in the finance department as security for the bank-notes to be issued in their names. The highest amount of the issue of these notes accrued in March, 1880, and reached the sum of 34,429,635 yen. For the redemption of the bank-notes no method was established, but at the time the Government decided, in 1882, on plans for redeeming all their paper currency, the withdrawal of bank-notes was at the same time determined in the same way. In the first place, the regulation for national banks underwent a modification, by which they have to deposit a certain amount of their reserve fund with the Bank of Japan, to enable the latter to undertake the task of withdrawing the bank-notes. The Bank of Japan has then to purchase Government bonds with the deposit of the reserve fund of the national banks, and to set aside the interest produced from the bonds to meet the requirements for redemption of the bank-notes. Secondly, the national banks have, according to the amount of bank-notes each of them have issued, to deduct 2½ per cent. of the amount of profit they make annually and deposit the same in the Bank of Japan, which purchases the Government bonds, and proceeds in a similar manner with the

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reserve fund. In case any bond so purchased in the above two instances is drawn for redemption, the Bank of Japan, with the funds received for the bonds drawn and paid for, shall again purchase bonds so as to make good the deficiency, the interest on which shall also be reserved for the above-mentioned purpose. Should any bank-note still remain in circulation after the lapse of fifteen years from the time this plan has been set in motion, then the Bank of Japan shall undertake itself to dispose of the deposited bond, the proceeds of which shall be appropriated to the withdrawal of such bank-notes from circulation.

Since the above plan was actually put in operation up to the end of the eighteenth fiscal year (March 31, 1886), the amount of bank-notes redeemed and withdrawn from circulation owing to bankruptcy is 4,382,203 yen in all; and, finally, the total amount of deposit in the savings-bank on July 1, 1885, was 8,142,409 yen, and on June 30, 1886, 23,103,226 yen, an increase of 14,960,817 yen.

MONEY.

The money in common use at the open ports of Japan and its United States equivalents, are: The yen or dollar of 100 sens is equal to about 80 cents in gold, though at this date it is not valued at more than 76 cents in gold. The gold yen, the unit of account, differs very slightly from the quantity of gold contained in the standard gold dollar of the United States. Much of the internal medium of exchange is paper currency, of which there are various denominations corresponding to those in coin. It is officially stated (November, 1886) to be at par. In the latter part of 1870 the Government established a mint at Osaka, where coins of gold, silver, and copper are manufactured. Gold coins consist of 20, 10, 5, 2, and 1 yen pieces. Of silver coinage there are 1 yen, 50, 20, 10, and 5 sen pieces. The "trade dollar," about equal to the Mexican dollar in weight and fineness, is also coined there. The copper coin consists of 2 sens, 1, one-half, and one-tenth (or rin) sen pieces, the last said to be the smallest coin in use. All the coins are circular in shape.

WEIGHTS AND MEASURES.

Kan = 1,000 momme = 8¼ pounds avoirdupois.
Shaku = 1 foot.
Ken = 6 shaku = 6 feet.
Chô = 60 ken = one-fifteenth mile.
Ri = 36 chô = 2.44 miles.
Chô, land measure, = 2½ acres.

The metric system of weights and measures is growing into favor, and it is stated to be the intention of the Government to introduce it into Japan at an early period.

RESOURCES.

Under this heading I shall not only consider the amount of money col- [illegible] taxation and that paid out to defray public expenses, but also the

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military and agricultural capacity of Japan and the value of her principal products.

The following is the budget in yen for the year ending June:

Revenue.	Amount.	Expenditure.	Amount.
	Yen.		*Yen.*
Land tax	43,151,582	Public debt	20,000,000
Stamp duties	825,889	Civil list and appanages	2,340,000
Tax on products of Hokkaido	538,216	Cabinet	570,805
Excise	14,843,039	Ministry of foreign affairs	839,228
Tax on sauces	1,266,510	Ministry of the interior	8,385,892
Tax on tobacco	1,501,184	Ministry of finance	12,896,334
Customs	2,621,744	Ministry of war	12,000,000
Postage-stamps	2,301,399	Ministry of marine	5,293,464
Telegraphs	882,868	Ministry of justice	2,501,997
Other public works	1,413,168	Ministry of public instruction	858,326
Various taxes	5,349,816	Ministry of agriculture and commerce	870,296
Total	74,695,415	Mhistry of post and telegraphs	3,668,357
		Senate	309,722
		Audit bureau	92,000
		Railway department	20,000
		Hokkaido	2,500,000
		Various	1,542,593
		Total	74,688,014

The public debt of Japan stood as follows in March, 1886:

	Yen.
Home debt with interest	230,004,935
Home debt without interest	12,966,567
Total home debt	242,971,502
Foreign debt	7,522,032
Total	250,493,534

About one-half of the home debt bears interest at 7 per cent. and the remainder from 4 to 10 per cent. More than half of this public debt was incurred by the former daimios, and was the result of their financial management previous to the change of fourteen years ago.

The plan adopted by the Japanese Government in 1878 for redeeming the national debt was as follows: An annual deduction from the revenue of a sum of 20,000,000 yen is employed in redeeming the paper currency and in paying both the principal and interest of domestic and foreign loans, and 20,000,000 yen of the reserved fund to be appropriated to the cancellation of various kinds of bonds, so that the interest saved upon such bonds may be employed in supplying deficiencies in the redemption fund.

ARMY.

Japan for military purposes is divided into six divisions, viz: Tokio, Sendai, Nagoya, Osaka, Hiroshima, and Kumamoto, in each of which there is a garrison.

There are branch barracks in other places, which are under similar jurisdiction to a garrison and to which men are detailed. There are 25 such barracks

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in the country. The number of soldiers of the Imperial Guard, infantry, cavalry, artillery, and engineers serving in time of peace in these barracks is 5,520, and the number of soldiers of all branches serving in the above-mentioned six garrisons is 49,773. Besides these soldiers there are 1,805 in Tokio and 752 colonial soldiers in Hakkaido. The total number of soldiers for reserve service of the regular troops is 91,374, and that of the second reserve 32,837. The total number, therefore, of all the troops in the country is 124,211.

The officers and non-commissioned officers in command in time of peace number 11,515. For the instruction of these there are six military colleges or schools, viz: The Cadet Academy, the Toyama College, the Artillery College, the Military Medical School, School for Paymasters, and School for Arsenal Apprentices. Besides these there is the Kiodo-Dan, where non-commissioned officers are educated.

The number of students who have graduated or passed through these colleges and schools is 1,196, and that of those still studying in them is 3,172. The usual course is three years at the Cadet College. The total number of horses (Japanese ponies) in the army is 4,595, and these are distributed among the garrisons and colleges for various purposes. There is a special body of troops for training horses, and all army horses are trained by them. There are also various establishments where horses for military use are held.

The conscription law of Japan enacts that all Japanese males between seventeen and forty years of age are liable to duty in the military or naval service. In both services it is divided into three years in the first reserve, one year in the second reserve, and up to forty years of age in the militia. No one convicted of crime can enter either service.

NAVY.

The number of existing men-of-war is 25 in all, mounting 143 guns. The total number of men serving on them is 4,790, the largest number serving on one vessel being 365 and the least 55. The total number of horse-power of all the vessels is 34,386, the highest on one vessel being 7,500 and the least being 60. There are 7 kinds of vessels, viz: 3 cruisers, 1 frigate, 4 corvets, an ironclad, 7 sloops, a yacht, a dispatch-boat, 7 gun-boats, and 4 torpedo boats. The number of naval officers, including admirals, surgeons, and accountants, is 834; that of non-commissioned and petty officers is 1,696, and that of the men is 5,786. The total number in the navy is therefore 8,451 men. There are 4 naval establishments in the country, of which 2 are ship-yards, 1 is an arsenal, and 1 is a gunpowder manufactory. The total number of engineers and laborers in these establishments is 4,146.

PRODUCTS.

Next to land the most important source of wealth in the country is rice. The yearly production of this cereal may be roughly put at 30,000,000 koku in quantity, and taking the value of 1 koku as 5 yen, we have an annual income

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of 150,000,000 yen from this source. Rice, therefore, occupies the most important place in the domestic trade of the Empire. Busying themselves with economical problems, which until recently received little attention in Japan, Japanese writers are beginning to inquire whether the staple is destined to permanently retain this leading position, or whether a change may be expected to take place in the agricultural programme of the people.

It is observed by the Keizai Zasshi that the annual increase in the production of rice is by no means commensurate with the corresponding growth of population. The statistics prepared by the geographical bureau show that in the first year of the Euchô era (A. D. 923) the total area of rice fields throughout the Empire was about 1,035,365 chô, or 2,688,400 acres approximately. The increase since that time is shown by the following table:

	Total increase.	Average annual increase.
	Chô.	*Chô.*
923 to 1453	692,510	1,099
1453 to 1702	1,068,676	7,172
1768 to 1834	522,025	3,954
1834 to 1878	1,562,913	35,520

In the year 736 of the Japanese era the population of the Empire was estimated at 8,000,000. The rate of increase since that time is shown by the following table:

	Total increase.	Average annual increase.
	Chô.	*Chô.*
736 to 1744	17,682,210	17,541
1744 to 1756	379,620	31,635
1756 to 1876	8,276,699	68,972
1876 to 1878	26,220	13,112

The two results are that in nine hundred and fifty-five years—between A. D. 924 and A. D. 1879—the aggregate increase in the area of land under rice cultivation was 3,846,125 chô, being an annual average rate of 11,936 chô yearly, while the total increase of population in eleven hundred and forty-two years—from A. D. 736 to A. D. 1878—was 26,364,749, or an annual average of 32,815. In other words, while the average annual increase of population has been over 4 per cent., that of the rice-producing area has been 1.143 per cent. The figures used should not be relied upon as entirely trustworthy, for some of them carry us back to remote feudal times when the compilation of statistics reflected the disturbances of the age. If, however, average be taken since the Tempo era (1830–'43), it appears that the average increases in the area of rice-growing land and in population were respectively 35,520 chô and 41,092 head. If we come closer to our own time and take the interval from 1879 to 1885, it is found that the average annual increase of cultivated land was 19,325 chô, while the average yearly addition to the population was 35,067. Whatever allowance be made on account of the possible inaccuracies of these figures, the conviction would seem unavoidable that the extension of the area of rice-growing land is by no means keeping

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pace with the increase of population. According to the investigations conducted in the bureau of geography the total quantity of rice produced in the year 1702 was 25,840,000 koku, and in the year 1834 this total had increased to 30,500,000 koku. The last statistical report published by the Government states that the rice production of 1884 was 26,340,000 koku. The conclusion is that the quantity of home-grown rice available for the national consumption has at best remained stationary during the past half century, while the population has increased by about nine millions.

Raw silk is one of the most important of Japanese staple exports, and the returns are generally more remunerative than those derived from any other article exported.

The total value of silk produced last year is estimated at 35,000 piculs (133 pounds per picul). Of this amount the exports were valued at 17,321,361 yen. Greater importance is now being attached to silk culture and some of the native press advocate that in many instances the existing rice fields would be a source of greater profit if planted with the mulberry trees, and this is being done. Formerly the only localities in which sericulture was carried on were Shiushu, Joshu, and Oshu, but the industry is now being extended to other places. The sprouts of mulberry trees which have been planted this year alone number several million, but the process of manufacture is not keeping pace with the extension of the area. By the hand process at present so extensively followed, the twisting of the silk is at times a delicate matter and frequently produces that inequality in the denier which tends to deteriorate the value of the silk. Machinery would obviate all this at once, but the custom of generations stands in the way and also the fact that many farmers are silk manufacturers. The rearing of cocoons is the farmer's business, and the manufacture of the silk should belong to others. Instead, however, of the labor being thus divided, the people of old sericultural districts, following in the footsteps of their ancestors, think that a man should make the silk from cocoons reared by himself. They resent the interference of other persons or the adoption of fresh ideas, though by reason of the antiquity and inefficiency of their tools and the consequent inferiority of the silk manufactured by them, the price obtained is barely sufficient to pay for the cost of production. The amount sold to foreign firms from June, 1886, to May of this year, reached 39,217 bales, not taking into account that which was exported direct; of this amount the filatures only numbered 16,931 bales. If those engaged in the industry would divide the work as above indicated there can be no doubt but that the profits upon the silk exported would be much greater. Such a division of labor must sooner or later take place, and when it does a valuable market for machinery will be opened.

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The following table will show the annual production of silk for the past thirteen years by the countries in which it is most extensively cultivated:

Annual production of silk.

[Approximate résumé, calculated in bales of 47 kilos.]

Crops.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.
France	15,600	15,700	3,300	16,500	13,000	8,100	11,300
Italy	60,900	55,500	21,100	32,100	56,800	28,300	64,000
Spain	3,000	2,500	1,900	1,500	1,300	900	1,500
Turkey and Greece	3,700	3,100	2,400	1,700	1,600	2,300	2,400
Broussa and Syria	8,000	6,100	4,800	4,600	5,300	5,100	6,100
Georgia and Persia	8,500	6,600	6,600	6,600	4,300	6,300	7,100
Total for Europe and Levant	99,700	89,500	40,100	63,000	82,300	51,000	92,400
China*	72,100	70,800	80,400	53,100	62,100	68,400	85,500
Canton†	17,700	21,500	22,000	18,100	17,900	22,400	15,600
Japan‡	13,100	14,900	24,000	23,900	21,500	20,400	24,800
India	12,600	8,200	12,100	14,300	7,700	12,300	10,400
Grand total	215,200	204,900	178,600	172,400	191,500	174,500	228,700

Crops.	1881–'82.	1882–'83.	1883–'84.	1884–'85.	1885–'86.	1886–'87.
France	16,000	16,500	13,000	10,400	11,400	14,400
Italy	66,300	53,100	71,900	63,000	55,900	72,500
Spain	1,800	2,400	2,100	1,900	1,400	1,200
Turkey and Greece	2,900	2,200	2,800	2,500	2,600	3,100
Broussa and Syria	5,100	7,000	10,000	8,900	9,200	9,400
Georgia and Persia	5,400	5,400	5,400	4,300	1,600	2,000
Total for Europe and Levant	97,500	86,600	105,200	91,000	82,100	102,600
China*	59,500	56,600	41,500	59,600	58,200	58,000
Canton†	22,900	22,500	24,600	14,500	15,700	23,700
Japan‡	25,700	31,000	35,500	33,000	32,600	33,500
India	8,200	9,700	11,400	18,300	16,200	16,600
Grand total	213,000	202,600	218,200	216,400	204,300	234,400

*These figures indicate the production destined for exportation each season—that is to say, the purchasers and stocks to the 1st June, after deducting the old stocks brought forward.

†Including the export by way of Bombay.

‡The large Japanese bales are here reduced to 47 kilos.

TEA.

It is difficult to ascertain the number of pounds of tea produced in Japan, but it may be approximately estimated at 70,000,000 pounds. The export of tea from Japan during the last seven years has been:

	Pounds.		Pounds.
1880	40,436,877	1884	35,766,600
1881	38,483,854	1885	41,244,718
1882	37,734,845	1886	47,595,651
1883	37,146,914		

These figures show that the export for 1886 exceed that of any previous year in the current decade by over 6,000,000 pounds and the average export during the period of 1880–'85 by over 9,000,000 pounds.

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The average price of good medium tea is from $17 to $19 per picul of 133 pounds.

In addition to the above products there were produced in 1884, 29,595,000 bushels of barley and 31,253,620 bushels of beans. The estimates for the year show at the time there were 1,093,471 cattle and 1,564,993 horses in Japan.

RAILWAYS.

The lines of railways open are:

Tokio to Yokohama, 18 miles, opened 1872, cost 2,855,732 yen; Kobe to Otsu, 58 miles, opened 1874 to Osaka, 1876 to Kioto, 1880 to Otsu, cost 7,763,500 yen; Tsuruga to Ogaki, 49 miles, opened 1882 to Yanagasi and Nagahama,* 1883 to Sekigahara, 1885 to Ogaki, cost 2,981,102 yen; Tokio to Mayebashi, 68 miles, 1883 to Honjo, 1884 to Takaski and Mayebashi, 2,323,302 yen; Shinagawa to Akabane, 13 miles, opened 1885; Omiya to Utsunomiya, 50 miles, opened 1884, cost 502,216 yen†; Takasaki to Yokogawa, 18 miles, opened 1884, cost 350,325 yen; Handa to Nagoya (including extension to Kiyosu), 30 miles, opened 1885, cost at present 897,912 yen; Naoetsu to Sekigawa, 18 miles, opened 1886, cost at present 237,497 yen.

The net traffic receipts as far as ascertainable have been:

Tokio to Yokohama, 1883, 374,324 yen, 13.1 yen profit; 1884, 353,122 yen, 12.4 yen profit; 1885‡, 231,558 yen, 8.1 yen profit.

Kobe to Otsu, 1883, 520,105 yen, 6.6 yen profit; 1884, 388,322 yen, 5 yen profit; 1885§, 212,045 yen, 2.7 yen profit.

Tsuruga to Ogaki, 1883, 31,445 yen, 1 yen profit; 1884, 3,520 yen, 0.1 yen profit; 1884‖, 7,332 yen, 0.2 yen profit.

The following lines are under construction or in contemplation:

Between Ogaki and Kiyosu, about 10 miles; between Yokogawa and Sekiyama, about 80 miles; between Yokohama and Nagoya, about 120 miles; between Nagawama and Ishitashi, about 40 miles; between Utsunomiya and Sendai, about 150 miles; between Sendai to the port of Shiogama, 10 miles.

TELEGRAPHS.

Since the first establishment of telegraphs in 1869 up to March 31, 1886, the total expenditure for construction, maintenance, and all other expenses has been 10,507,507 yen, and the total revenue from all sources has been 8,097,347 yen. From this it will be noticed that the telegraph department has not yet returned all the money laid out on construction, etc. That could hardly be expected as in the early years the expenditure was very heavy and the receipts very small. For the last few years, however, the receipts have

* The tunnel was completed in April, 1884. † Exclusive of bridges afterwards constructed.
‡ Nine months. § Six months. ‖ Nine months.

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amply covered expenditure with the exception of special construction, all outlay for which should be placed to capital account, for example:

	1882.	1883.	1884.
	Yen.	*Yen.*	*Yen.*
Receipts	1,012,144	891,163	907,067
Expenditures	921,602	817,685	845,912
Surplus	90,541	73,477	61,155

All the principal towns and places are in connection with Tokio and Osaka, with central stations in these two cities. Between Nagasaki and Shanghai and Wladiwostock cables have been laid, and Nagasaki is in direct communication with Yokohama (800 English miles) by cable, so that all international messages can be transmitted without delay. Among other places Osaka, Kioto, Kobé, Shimonoseki, Nagasaki, Nagoya, Yokohama, Kanagawa, Niigata, Sendai, and Hakodate are most important and busy circuits, requiring the fitting of duplex Morse instruments. Morse ink-writers, with polarized relay, are exclusively used in all the stations, and No. 8 B. W. G. galvanized iron wire is generally employed for the lines. It must be remembered that the construction of telegraph lines is rather difficult in Japan on account of the nature of the land, the greater part of it being hilly and mountainous. There are no means of transporting timber and materials by either horses or carts. Moreover, in the plains dry river-beds of over 1,000 yards in breadth have to be crossed. The work in such places is generally very expensive and troublesome both for construction and maintenance. The country is divided into fifteen districts, each under a district engineer and three inspectors, and a district is subdivided into three sections. As a rule all newly erected poles are injected with sulphate of copper for their preservation. The poles mostly used are sugi (a kind of cedar tree), which is cheap and very suitable. It is obtainable in all parts of the country. Insulators employed on the lines are at present manufactured by Tukagawa, at Arita, near Nagasaki, the quality of porcelain produced from Arita being excellent. Lately many improvements have been made in manufacturing them. They are so good that direct working on some of the longest lines is practicable.

The revenue for the period from July 1, 1885, to March 31, 1886, was, inland traffic, 511,599 yen; international traffic, 54,329 yen; length of lines—telegraph, 2,272 ri; telephone, 93 ri; length of wires—telegraph, 6,163 ri; telephone, 128 ri.

The staff of all grades numbers 2,370 employés. Akin to telegraphs is the telephone, which was first introduced into the country in 1878 from America. In the same year a set of telephone instruments was made at the workshops of the telegraph department, and the first trial was made on a line between the imperial palace and the public works department, the result being quite successful. Since that time up to the present great numbers of

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telephones and microphones have been manufactured, and now nearly all the principal Government departments are connected by telephone lines.

All electrical instruments and necessary materials for the construction of the lines are manufactured in the workshop of the telegraph department. The principal instruments made are as follows: Morse instruments, duplex Morse instruments, Wheatstone's automatic transmitters and receivers, telephones, microphones, dynamo-electric machines, batteries, resistance coils, magnetic meters, etc. Attached to the department is a telegraph school, where operators for the telegraph stations are trained. It was established in the year 1871 under the direct supervision of the director-general of telegraphs. Up to the present the number of students trained in the school has been 1,334. The term of tuition is, on an average, one year, and for quite young students two years. Having finished their course of study the students have to serve the telegraph department for the term of five years.

TRADE RELATIONS.

The total value of the export trade of Japan for the year 1885 was $37,137,335, while the imports amounted to $29,356,967. In 1886 the exports amounted to $48,870,471, and the imports to $52,168,432, showing a total trade of $101,038,903; while that for the previous year was only $66,494,322.

The exports to, and the imports from, the principal countries, as compared with 1885, were as follows:

Countries.	Exports.		Imports.	
	1885.	1886.	1885.	1886.
United States and Canada	$15,613,868	$19,988,216	$2,726,184	$3,358,986
France	6,735,911	9,632,902	1,329,866	1,330,918
China	7,655,468	9,594,907	5,763,050	7,123,851
Great Britain	2,411,978	4,195,355	12,415,421	12,703,248
Germany	493,383	864,453	1,665,652	2,313,659
Corea	299,600	829,316	239,514	563,447
East Indies and Siam	492,083	649,143	3,396,964	3,561,319
Australia	284,235	469,914	71,321	80,485
Russia	246,291	231,695	.....	.....
Italy	120,593	181,200	95,998	119,557
Austria	24,607	156,315	.....	.....
Belgium	.....	.....	317,862	507,908
Switzerland	.....	.....	306,254	263,446

It will be seen that Great Britain exports more than any other nation in the world, and imports less than any nation of much commercial importance. When considering the United States the above statement stands reversed.

In 1886 Great Britain bought from Japan, in round numbers, $4,000,000 of merchandise, and sold to Japan $12,000,000, thus leaving in her favor $8,000,000 in one year's transaction. Making full allowance for what goes to Canada it can safely be stated, in round numbers, that the United States

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purchased from Japan in 1886 merchandise to the value of $16,000,000, and sold to Japan only $3,000,000, showing a balance on the debit side of her account of $13,000,000.

The same table shows that France buys $8,000,000 more than she sells Japan, while Germany, whose trade relations have just commenced, had a balance in her favor for 1886 of $1,200,000. It may be noted in this connection that the aggregate purchases and sales by Great Britain do not exceed the purchases alone by the United States. This fact indicates clearly the commercial interest of the United States in Japan.

PETROLEUM.

The following tables in reference to the petroleum trade may be interesting in this connection:

Russian petroleum.— Total shipments of refined, crude, crude residuum, lubricating, and benzine.

	Gallons.
1886	377,006,120
1885	160,589,965
1884	132,574,100
1883	108,067,280
1882	72,136,695
Total	850,374,160

of which, by Caspian Sea to Russia and Persia, 616,768,285 gallons; by railroad to Batoum and intermediate points, 233,605,875 gallons.

Shipments, 1886.

	Gallons.
Via Caspian Sea to Russia and Persia	282,823,150
Railroad to Batoum and intermediate points	94,182,970
Total	377,006,120

United States petroleum.— Total shipments of crude, refined, and naphtha.

	Gallons.		Gallons.
1886	395,363,788	1882	387,332,070
1885	370,850,375	1881	367,890,039
1884	384,521,437	1880	264,067,119
1883	420,958,900	1879	293,992,095

The rapid increase of the Russian petroleum trade should be carefully noted.

The following table shows the shipments from the United States to ports in the East Indies, Java, China, Japan, etc., in 1886, as compared with 1885:

Country.	1885.	1886.	Increase.	Decrease.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*
Java	1,699,383	2,430,60,	731,224	.....
India	2,779,387	4,341,862	1,562,475	.....
China	3,155,069	2,782,266	.....	372,803
Japan	2,325,192	1,902,588	.....	422,604
Straits	559,603	773,977	214,374	.....

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Total shipments to all ports for 1886, as compared with 1885: 1885, 10,518,634 gallons; 1886, 12,231,300 gallons; increase, 1,712,666 gallons.

REACHING OUT FOR ORIENTAL COMMERCE.

The nations of Europe have not been indifferent to the importance of Oriental commerce, and Japan is in regular communication with the outside world. The principal lines of steamers are—

French.—The Compagnie des Massageries Maritimes, mail service, semi-monthly; terminus at Marseilles. This line is extended to Havre and London.

English.—The Peninsular and Oriental Steam Navigation Company; terminus at London.

German.—The Norddeutscher Lloyd, mail service monthly; terminus at Bremen.

Japanese.—The Nippon Yusen Kaisha, mail service weekly; terminus at Shanghai. The steamers of this company are in connection with the Pacific Mail and Occidental and Oriental at Yokohama.

American.—Pacific Mail and Occidental and Oriental; terminus at San Francisco.

Merchandise can be shipped to any part of the world by the above line of steamers. A new line has recently come into existence, which has already commanded attention, and promises to be no inferior competitor. It now has three ships, with an aggregate gross tonnage of 9,371, running regularly from the principal ports in China and Japan to Vancouver, in the province of British Columbia. The city of Vancouver is also the terminus of the Canadian Pacific Railway, as it is the terminal port of the new line named. Last year a considerable quantity of tea was carried from this port to Port Moody in sailing-vessels, the number of pounds being estimated at 3,352,122. During the season of 1887 the steamers on the Vancouver line carried 4,855,634 pounds of tea from this port, which were taken from their warehouses at Vancouver and transported overland by the Canadian and Pacific Railway. The tea so shipped and carried would, in the absence of this line, have principally been shipped by the Pacific Mail and Occidental and Oriental steamships, landed in San Francisco, and transported overland by American railway companies.

The Pacific Mail and Occidental and Oriental Companies have no steamers touching at this port. Tea shipped from here by these lines is carried by other ships to Yokohama and then reshipped there.

The exports from Hiogo in 1886 were 145,848 tons; in 1887, 186,071 tons; an increase of 40,223 tons. Would it not be advisable for the American steamship companies to consider the advantages of having one of their steamships touch regularly at the port of Hiogo? In 1886 the tonnage from this port to America was 35,258 tons; in 1887, 49,557; an increase of 14,299 tons.

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The following extract from the London Times in reference to this new route has been copied in the English journals published in Japan and commended to the special attention of British residents in Japan:

The new route has been termed the "Empire route" by reason of the fact that it lies wholly within portions of the British Empire, except where it crosses the high seas. In this political respect it differs from the other three lines to the East. The Suez Canal, or "overland route," passes through the foreign states, France, Italy, and Egypt, or coasts along many more — France, Spain, Portugal, Morocco, Algiers, Egypt, and Arabia. The Cape route coasts along France, Spain, Portugal, and Morocco, and on past a chain of settlements on the islands and main-land of Western Africa belonging to the several European powers. The Cape Horn route follows along a similar track until it adds to the list the states of South America. These routes are thus dominated over great portions of their length by foreign, and therefore possibly hostile, states. But the Empire route passes out of the ports of the British Isles on to the open high sea of the North Atlantic and so to the British port of Halifax, whence the railway, wholly within British territory, carries the passenger to Vancouver and places him once again on the high sea till Australia and China are respectively reached. The advantages to British commerce of such a route in the event of hostilities with any foreign power are obvious. Among other strategical advantages of this route is the fact that at the three critical points of its course excellent steaming coal is found in great abundance. Close to Halifax, the Atlantic terminal port, and close both to Vancouver and to Sydney, two of the Pacific terminal ports, good coal is obtained. Along the rival routes coal has to be carried, at great expense, 3,000 miles to Port Said, 4,500 to Aden, and 6,500 to Colombo or the cape.

Many still live who recollect the strenuous endeavors of Lieutenant Waghorn to prove that via Egypt lay a shorter route to the East than via the Cape, but to the present generation the Suez route is a mere commonplace of every-day life. It has, however, required no such arduous work to explain to the public the advantages of the new westward-going overland route.

The physical facts of actual distances along the several routes are conclusive. They may be summarily tabulated as follows, in thousands of miles:

	Via Canada.	Via Suez.	Via the Cape.	Via Cape Horn.
England to Japan	9¾	13¾	15½	15½
England to Shanghai	10½	12½	14¼	16
England to Hong-Kong	11	11	13½	16
England to Singapore	12½	9½	12¼	16¼
England to Brisbane	11½	12¼	14¼	13¾
England to Sydney	12	12	13¾	12¾
England to Auckland	12	12	14	11½

* * * * * * *

The Canadian route possesses four features of superiority over any other so far as saving of time is concerned. First, the route follows, as it were, a great circle, or, in other words, travels at latitudes where degrees of longitude are shortest; secondly, the seas crossed are cool, a matter of immense advantage to marine engineers as well as to passengers, and they are for the most part free from monsoons and tropical cyclones; thirdly, 2,500 miles of the route consist of a comparatively direct and easily-worked line of railway; and, fourthly, the sea courses are direct and do not have to follow the sinuosities of coast lines or encounter the dangers of coastwise navigation.

Such is a summary comparison of the notes. It has, however, been argued that the mail and mercantile communications with trans-Pacific ports are already amply provided by east-going services via Suez or the Cape. For instance, a new subsidy of £365,000 per annum

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has just been awarded to the Peninsula and Oriental Company to provide mail communications with the far East. This is intended to suffice for the present traffic, but if we are to judge of the future by the past we may see in the records of the last twenty-five years that the growth of the trade of the United Kingdom with trans-Pacific ports is such as to foretell at least a duplication in value during the ensuing quarter of a century, which in these days of trade depression is a prospect carefully to be fostered. The following are the records of trade (in millions sterling):

Between the United Kingdom and—	In the year 1860.	In the year 1880.	Estimate for 1910.
Australasia	17	51	133
Straits Settlements	3	7	16.5
Java, Philippines, etc.	3	7	16.5
Hong-Kong and China	15	20	26.5
Japan	.2	3	4.5
Total	38.2	88	217

There are other signs of a great expansion and growth of this trade during the next quarter of a century. It is considered as beyond doubt that China, with her 400,000,000 of people, will open herself to Europe by means of railways and telegraphs. France is certainly lavishing money on her newly-acquired territories in Tonquin; New Guinea, Borneo, and many smaller islands are coming under the subjection of European powers, and will, without doubt, swell the rapidly growing totals of trade in these Eastern seas.

The Atlantic link of the chain it is proposed to provide by a line of first-class high speed steamers — to be subsidized by the Canadian government. It will be possible to use Quebec as a summer and Halifax as a winter port. The latter is the only deep water port on the coast, and this is a very special advantage on a coast where fogs prevail. It is possible by free use of the lead to work into Halifax in the densest fog, and, at all events, immediately the fog lifts entry is certain. In New York, on the contrary, the shoals about the bar render navigation in a fog impracticable, and when the fog lifts vessels can not enter unless it also happens to be high water at the time. Halifax is only 2,400 miles from England, and is therefore nearly two days nearer than New York. The Canadian government is acting with wisdom as well as enterprise in this endeavor to make Halifax the great port of the continent, and certainly the Atlantic port of a through route to the East. It is expected that the new fast steamers will make the passage in about five days — making through connection between Liverpool and Vancouver within eleven days.

Thus far the route is already complete, but on the express stipulation that the continuation of the route across the Pacific be arranged for. So far as the route to New Zealand and Australia is concerned, it is hoped that Canada will be able to combine with the governments of those colonies, and in two years' time, when the existing contracts lapse, divert to the Canadian route a portion of the subsidies now paid for the San Francisco service. Then, too, Queensland now pays £55,000 for a forty-four days' service via Torres Straits, whereas the Canadian route will offer a thirty days' service for about half such a sum, seeing that a total of £50,000 from all the Australian colonies would probably suffice to secure, with the Canadian contributions, a thoroughly efficient service.

The China service stands on a different footing, because there is no group of wealthy English colonies desiring to establish such a service; whereas the main benefits of the through route would be enjoyed by China merchants and export manufacturers in the United Kingdom. At the same time the subsidy asked for amounts in the total only to £60,000 for a monthly or £100,000 for a fortnightly service. Of these sums Canada is willing to contribute £15,000 and £20,000 respectively, leaving as a sum to be supplied out of the imperial exchequer £45,000 in the one case and £80,000 in the other.

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The Imperial Government could not shut its eyes to the obvious signs that a mail service by this route would become a commercial necessity of the near future, and on the 19th of October, 1885, a notice was issued by the post-office calling for tenders for a fortnightly mail service, to commence in February, 1888, to run between Vancouver and Hong-Kong. Two tenders were sent in, and one of these has since been placed before the Government in a somewhat amended form. It is proposed to run a service of steamers, to be built according to admiralty requirements, to be capable of steaming more than 16 knots, and to be available in war time for service as armed cruisers or transports; the service to be ¼-knot service, to carry mails free of all further charges, troops at low rates, and war materials and Government stores across the continent at absolute cost.

* * * * * * *

Wintry frosts can be mitigated on the Red River at least as skillfully as summer heat on the Red Sea. Charges can be reduced to the lowest level which will leave a profit. Harbors and their staff and apparatus can be improved and perfected. Fleets of Atlantic and Pacific steamers can be launched as luxurious as those of the Peninsular and Oriental Company, without the necessity of consulting the shallowness of a canal. The Canadian Pacific, with the treasury of the Dominion to back it, and sufficient assistance from this side to indicate sympathy, can exert its energies as fruitfully as any rival enterprises in smoothing away obstructions. At the end, and as a sort of fairy godmother's gift, it always has at its disposal the indisputable geographical fact that it is absolutely the nearest way to half a dozen of the most remunerative markets for British trade. Its advocates at a distance have but to remember to urge this, and its Canadian owners so far to forget it as to act as if their lines had to make up for natural drawbacks instead of sleeping upon natural excellencies. In that case its 9,000 miles to Japan against the 13,000 by the canal, and its 10 to Shanghai against 12, will be as persuasive, all in good time, to British trade as are the reasons to a Londoner for traveling to Brighton by the main line, and by Horsham.

Referring to the same subject, the Jiji Shimpo, a native journal, has the following to say:

The British Government has proposed to the other powers that the Suez Canal should be declared neutral, but other Governments, especially the French, do not see their way to agree to this proposition, and so the matter remains undecided. But even though all were to consent, and the canal were to be declared neutral, it must be evident that in time of emergency any one of the great powers whose shores are washed by the Mediterranean might seize it with ease by the mere dispatching of a squadron, and thus England's communication with the East would be broken. At present Egypt may be said to occupy a position of dependency on England, but more than one state is gathering itself together for the encounter. France especially, whose navy is not by any means insignificant, would be able to make it hard for England to preserve the neutrality of the canal in time of war. It is not cause for wonder then that England should look about her for some other route to the East, by which she may carry on her trade without interruption either in peace or war. And such a route she has obtained in the Vancouver line. If we take it that Hong-Kong is the center of England's Eastern commerce, we shall find that the distance via Calcutta to the center is 10,657 miles, whereas from Liverpool via Vancouver it is only 9,962 miles, showing a difference of 695 miles in favor of the latter route. Even assuming, however, that the distances were exactly the same, there would still remain with the Vancouver line the advantage that it is not liable to interruption in time of war. We find further that the voyage to Hong-Kong through the Suez Canal occupies fifty days, while the other route can be covered in four weeks, the time being reduced in the latter case by about half. In September last the British Government promised to grant an annual subsidy to the Canadian Pacific Railway of $250,000 for the carriage of the Eastern mails, a step which clearly indicates that the Government intends to avail itself of and encourage the new line. While it is a matter for sincere congratulation that the East and the West should thus be brought into closer and more rapid communication,

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yet there is not wanting another point of view from which we can not look at the question without feeling that somehow an enemy has drawn a step nearer to our gates. England has at present only one Hong-Kong in the East, and the opinion is generally entertained among her people that as the tendency of her Eastern trade is toward the eastward, another post to the east of Hong-Kong ought to be obtained. When, therefore, England in April, 1885, suddenly occupied Port Hamilton, this fact occurred to our mind in connection with her action; but to our surprise she evacuated the post last year, leaving us wrapped in the mistiest doubt as to her intentions. The opening of the Canadian Pacific line, however, recalls to our mind the former hypothesis, and causes us to speculate whether now her desire and intention are to acquire a good position nearer to herself which shall form the center of her trade in the East. It does not require a vivid imagination to conjecture that ere long politics in the East will be subjected to significant movements. Hitherto any action taken by England to the eastward of Hong-Kong was just so much the more distant from London. Now the contrary is the case. The farther the center of English trade in the East is moved eastward the nearer it is to England. Yokohama was farther from England than our chief port is now by just the distance between Yokohama and Hong-Kong. Yokohama is now 1,356 miles nearer to England than Hong-Kong. The workings of nature are not infrequently interfered with by the hand of man, but we can not recall any instance in which geographical conditions have been so completely reversed. In effect we have been moved 1,300 miles away from Hong-Kong, a fact which all who are interested in commerce in the East would do well to ponder over and rule their actions by. The opening of the Canadian Pacific route will entail the necessity of strengthening the British Pacific squadron, and by this measure the power of England in the East will be greatly increased and rendered capable of actions which may surprise many people.

INDUSTRIES.

The cotton-spinning mills in Japan number 21, although only 19 are in working order at present. According to official returns the following is the number of spindles, material employed, etc., in September last:

Number of spindles	71,520
Amount of ginned cotton used.....me...	117,674
Amount of rolls manufactured.....me...	101,836,360
Amount of coal consumed.....kin...	1,836,111
Number of workmen	24,700
Number of work-women	35,623
Average price of cotton per 48 kwamme (English No. 16, domestic juban)....yen....	103.09½

The latest returns (1884) of the department of agriculture and commerce show that there were 1,185 silk manufactories in Japan, employing 4,158 men and 40,138 women. Of the manufactories 496 were in Nagans prefecture, province of Shinshin, and 255 in the Gifu prefecture, province of Mino.

As regards the rates of wages, the following table may be accepted as approximately correct:

	Cents per day.
Carpenters	40 to 60
Plasters	45 to 50
Roofers	65 to 75
Cartmen	35 to 45
Wood-cutters	50 to 70
Paper-hangers	30 to 60

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	Cents per day.
Stone-cutters	60 to 70
Blacksmiths	40 to 50
Painters	25 to 35
Coolies	20 to 30
Gardeners	25 to 50

Up-country unskilled labor is obtainable at from 5 to 10 cents a day. Artisans obtain from 20 to 30 cents.

The usual hours of labor are from 7 a. m. to 6 p. m. in summer, and from 7 a. m. to 5 p. m. in winter, but at least three hours a day may be deducted for meals and rest, the actual working hours being reduced to eight hours per day in summer and seven hours in winter.

IRRIGATION AND FARMING.

The following extracts are from a paper prepared by Dr. H. Latham on irrigation and farming in Japan:

The rain-fall is exceedingly heavy, varying according to locality from 60 to 100 inches annually. Along the ocean shores, on the alluvial plains, the average amount of precipitation is about 60 inches. At the foot of the mountain ranges it is 70 to 75, and on the great mountain sides it will reach 100 inches. It may seem strange to us of Europe and America that any irrigation should be found necessary or useful with such a rain-fall, but such is the fact. In times so far back that no record is found irrigation was practiced in Japan, and as months have become years, and years continue, that system has spread from one end of the Empire to the other. The Government records show decrees of the Emperor Sinjin, who reigned in the century before the Christian era, regulating irrigation, and his son and successor ordered the construction of 800 irrigating canals in different parts of the Empire. This system is in universal use on the great plains that border the seas, in the great valleys, and on the hill and mountain sides. In all parts of the mountains and in the foot-hills, at the sources and along the line of the streams, there are immense reservoirs for the storage of water in the rain season. By this means the overflow of the lower lands in the wet months is to some extent prevented, and the supply in the dry months is supplemented. The ditches for irrigation are always so constructed as to be a means of drainage when there is an excess of rain. By this means the supply of water to the farmer is equalized through the whole year. Another necessary result is accomplished. The health of the irrigated districts for plants and people is conserved. Drainage for these purposes is just as important in any country as irrigation. The Japanese system is perfect in three important particulars, viz: Storage of water, distribution of water to the land, and the drainage of the irrigated land.

That irrigation has been proved to be of incalculable benefit is shown by the enormous crop rate throughout the whole Empire. It is within bounds to say that a Japanese farmer raises more from one acre of his land than a California farmer does from five acres. It is true that much of the land in Japan has two crops a year, one in summer and one in winter. In many places in Japan the soil has yielded two crops a year for two thousand years, and the productive capacity of the soil is greater now than ever. This is in marked contrast to the result of land "skinning" in the United States.

In the spring a piece of land will be sown to rice, which is the great staple crop. The rice is harvested in October, with an average crop rate of 50 bushels to the acre; and right on the heels of the reaper follows the spade and mattock preparing the land for a crop of wheat, barley, or rye. These latter crops are sown in October and November, and are harvested in April or May, with an average crop rate of 40 bushels of wheat and rye and 50 bushels of

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barley to the acre. In order to maintain through hundreds of years such a crop rate, fertilization is of the utmost importance. In fact, it is the great problem for the farmer to solve. Unlike American and European countries, the farmer in Japan has no barn-yard fertilizer. Cattle and horses are used mainly for purposes of packing. Under these circumstances the question of fertilizers is of the first importance. Experience has taught the Japanese that irrigation is an important means of fertilization. It has been demonstrated that irrigated lands only require about two-thirds as much fertilization as non-irrigated lands. As an evidence of what thorough tillage combined with irrigation and drainage has done it needs only to be stated that Japan has under tillage only 12,000,000 acres; that from these 12,000,000 acres 38,000,000 people are clothed and fed. More than this, 40,000,000 pounds of tea, silk to the value of several million dollars, and large quantities of tobacco and rice are annually exported. Such results speak more than volumes of what thorough tillage, supplemented by irrigation, can do even in a country with from 60 to 100 inches of rain-fall.

I do not think it would be proper for me to conclude this report without referring to a custom which has enjoyed immunity so long as seemingly to be regarded as a law. This custom is not confined to Japan. It has its votaries in Europe, but it is because the number is increasing in Japan that I desire to direct special attention to it. I frequently see in the markets of this port American brands on merchandise that never was in America. These brands are used for the purpose of commanding ready and prompt sales of the merchandise they cover. It is time for an end to be put to such an infamous fraud and imposition. It is a deceptive misrepresentation of American industries and a gross and palpable wrong practiced upon American manufacturers. If a certain brand or the name of a certain manufacturer becomes popular in the United States, it is not long before the brand and name is seen on packages of merchandise made in Japan or imported from Europe, offered here either at wholesale or retail. Some of the Japanese merchants are quick to see the advantage of utilizing such means and unscrupulous enough to do it.

A nation that is demanding, with so much reason, the rights of undisputed sovereignty should incorporate in its code of laws a provision against this wholesale counterfeiting now going on within its borders and by its subjects. I submit the great injustice being done the manufacturers of the United States, and the importance of arresting this larceny of American brain.—OSAKA, JAPAN, *December 16, 1888.*

T. R. JERNIGAN,
Consul.

GOVERNMENT SALARIES IN SWITZERLAND.

It may be of interest to know that the salaries paid to functionaries in Switzerland are not relatively higher than the wages of the people at large. Information recently published shows that the highest Government officials are paid salaries which seem insignificant when compared with the compensation accorded for like services in the neighboring monarchies or in republican France.

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Each of the seven members of the federal council which constitutes in its collective capacity the executive authority of Switzerland receives a salary of $2,400 a year. The president of this council who holds his office only a single year, and who is at the same time styled president of the Swiss Confederation but is invested with no more ample authority than his six colleagues, is allowed $300 in addition for the so-called "expenses of representation," that is, for entertainments and kindred purposes. In the appropriation bill for the year 1888 the sum of $17,100 is the only provision made for the maintenance of the executive department.

Small as the remuneration of these officials appears it is considerably larger than that provided by the law of 1848, which gave the president 6,000 francs and each of the other members of council 5,000 francs a year. Ten years later the above sums were raised to 10,000 and 8,500 francs, respectively, at which point they remained till the present rate was established.

The *Conseil des Etats*, corresponding to our Senate and composed of two members from each canton, is paid by the sovereign states of whose representatives it consists. Its members receive at most 20 francs for each day's attendance, while others are allowed only 6 francs. As members of joint committees, however, they receive additional compensation.

The members of the national council elected by universal suffrage receive 20 francs for each day's actual attendance. Before 1874, when a new Swiss constitution was adopted, they received 12 francs a day and mileage of 150 francs for each league traveled in repairing to and returning from the assigns. This mileage is still paid by the Confederation.

In the legislative appropriation bill for next year the following sums are provided for the compensation of the two houses of the Federal Congress:

Conseil des Etats (Senate), salaries and mileage of committees, 10,000 francs; salary and mileage of translator, 3,000 francs; service, 2,500 francs; total 15,500 francs.

National Council (House) salaries and mileage of members and members of committes, 200,000 francs; translator, 3,000 francs; service, 3,000 francs; total, 206,000 francs.

Accordingly, the entire outlay of Switzerland next year for its executive and legislative department will be no more than $61,000, a modest sum even for a country of less than 3,000,000 inhabitants.—BASLE, *January 10, 1888.*

GEORGE GIFFORD,
Consul.

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SHIPPING OWNED IN THE NEWCASTLE DISTRICT.

The publication of the latest volume of Turnbull's Shipping Register enables a census to be made of vessels owned in various ports of the United Kingdom. Below is given a statement of vessels registered in some ports within this consular district:

Ports.	Sailing vessels.	Steamers.
Newcastle	88	355
North Shields	82	259
South Shields	34	57
Total	204	671
Sunderland	71	266
West Hartlepool and Hartlepool	15	233
Grand total	290	1,170

Middlesbrough shows 87 vessels, the division in sailing vessels and steamers not being given.

It will be seen by the above that over 1,200 steamers are owned in six ports of this consular district. This statement will give some idea of the great trade which centers here, and which extends over the whole world. It is also interesting in showing how rapidly steam is superseding sail in the trade of the world.—NEWCASTLE-UPON-TYNE, *March 1, 1888.*

JASPER SMITH,
Consul.

INFORMATION OFFICES OF ARGENTINE REPUBLIC.

The offices of information, created recently abroad, work with regularity in the principal capitals, and the effect of their propaganda are being felt in Europe. Provided with necessary elements they are able to give whatever information is required respecting the Republic. Numerous newspapers and periodicals publish the details transmitted to them by the offices, and it may be said that there is not a single European publication which does not make known our progress to the public. A telegraphic service in Paris, in charge of the inspector of the offices of information, transmits to them and to the European press all important news respecting our country. For the first time our products appear in the exhibitions which are so frequently held in the old world. Every office has a collection of specimens, and is under obligation to send it to these exhibitions, in which we have obtained first prizes. The offices of information are visited by numerous persons who desire to come to this country to do business with it, and in many of the offices there is not a sufficient staff to give the verbal and written information sought, so great is the increasing demand for it. In connection with these offices, and to demonstrate the riches of the Argentine soil, a permanent museum of products has been created in this capital in which will be collected and classified scientifically all the raw material and those of the first and second extraction which are found or prepared in the country, and the studies will be made of them which are necessary for proving their merits. The organization given to this institution meets all the exigencies of science and progress; the museum will comprise the mineral, vegetable, and animal products of all the provinces and natural territories, the similar foreign products, and the wrappers and labels used for them, respectively. Having regard to the high importance of this museum some ground belonging to the nation has been made use of for constructing a special edifice where it can be permanently installed, and which will be within reach of all who wish to study the riches of the

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Republic. The executive power has taken the necessary measures for making the museum an establishment which, by its practical services, may promote the natural interests by making known, in the most eloquent manner, how great may be the development of industry among us in making use of the riches of our territory. The administrative part of the museum, which contains the bases of its complete and perpetual preservation, has been carefully formulated, and the plan of the work is being carried out all over the Republic.— *From President's message.*

RAILROADS IN YUCATAN.

One of the best built railroads in Yucatan is that owned by the brothers Rudolfo and Olegario G. Canton, and named the Merida and Peto Railroad; and as it may be considered a typical road of Yucatan a general description of it may be of use.

Its concession was consummated May 27, 1878, and the first rail laid a year later. The road is of 3 feet gauge, well built, and ballasted for the most part. The rails are of Bessemer steel (*purchased in England*), weighing 40 pounds to the yard, and resting upon sleepers of "chu cum," a very hard wood, as hard and heavy as lignum vitæ. These ties, or sleepers, are placed 2 feet apart, fifteen to the rail length. The locomotives are four in number, all purchased in the United States. Five passenger cars are now in use. Twenty-two box and platform freight cars carry the bulk of the traffic.

Upon the line of the 68 kilometers now in actual operation there are eight suitable and thrifty looking stations, built of stone and mortar, well cared for, and very neat in appearance.

The cost of constructing a road-bed in Yucatan is materially lessened by the level land surface. I know of but one natural depression necessitating a fill of over 25 feet upon any of the five railroads in Yucatan. The rocky plane that for the most part covers the populated portion of Yucatan is of recent formation, being of soft, calcareous rock, and in traversing it the road builders sometimes find themselves literally breaking through, the percolating waters and other causes combining to form caves or "cenotes" of varying magnitude, and covered with a crust of various degrees of thickness and strength.

The above-described Merida and Peto Railroad has just had to grapple with and overcome a difficulty of this nature. While cutting the road through a small hill near the station of Hunabchen a blast suddenly opened the mouth of a gulf beneath, which luckily proved to be comparatively small and shallow, and with much labor was filled sufficiently to allow the work to proceed.

I have collated the following data concerning the railroads of Yucatan. The amount expended can, of course, be considered as only approximately correct. Various reasons make it an impossibility to obtain the exact figures in dollars and cents.—MERIDA, YUCATAN, *February 15, 1888.*

EDWARD H. THOMPSON,
Consul.

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TABLE A.—*Railroads of Yucatan—Construction data.*

Name of railroad.	No. of stations.	Ultimate terminal points.	Length of line.	Already constructed.	Gauge.	Rails.			Government subventions.	
						Class.	Weight per yard.	Where purchased.	National.	State.
									U. S. gold.	*U. S. gold.*
*F. C. Merida á Progreso	3	Merida and Progreso	24 miles	24 miles	4 ft. 9 in.	Bessemer steel	60 pounds	England	$9,525 per mile.	$45,600 at completion.
Soluta Branch	3	Merida and Soluta		30 miles	do	do	do	do		
Merida á Peto F. C.	8	Merida and Peto	100 miles	43 miles	3 feet	do	40 pounds	do	1,192 per mile.	7,152 per mile.
F. C. Merida á Calkini	4	Merida and Celestum	102 miles	27 miles	do	do	do	do	do	Do.
F. C. Merida á Valladolid	6	Merida and Valladolid.	106 miles	22 miles	do	do	do	do	do	Do.
Conkal á Progreso Branch		Conkal and Progreso		19 miles	do	do	do	do	do	Do.

TABLE B.—*Railroads of Yucatan—Rolling stock data.*

Name of railroad.	Name of owner.	Engines.	Where purchased.	Passenger cars.	Where purchased.	Freight cars.	Where purchased.	Class of brakes.
*F. C. Merida á Progreso Soluta Branch	Merida and Progreso R. R. Co.	7	1 England, 6 United States	10	United States	32	United States	Chain brakes.
F. C. Merida á Peto	Canton Bros	4	United States	5	do	22	do	Do.
F. C. Merida á Calkini	Merida and Calkini F. C. Co	2	do	5	do	8	do	Do.
F. C. Merida á Valladolid Conkal Branch	Gen. Francisco Canton	4	do	6	do	27	do	Do.

* The Merida and Progreso (broad gauge, 4 feet 9 inches), being the first railroad constructed in Yucatan, received a definite sum from the state upon the completion of the road. The roads constructed afterwards received from both state and national governments a stated sum for every kilometer completed. The "subvenciones" due the above-mentioned Merida and Progreso Railroad have now, I understand, been paid in full. The other roads have not as yet been paid the full amounts granted them, but the payment is believed to be only a question of time. F. C. is an abbreviation for "ferro carril," or railroad; thus, "F. C. Merida á Progreso" translated reads "Merida and Progreso Railroad."

NOTE.—The above tables of data having been collected by the consul in person, and, so far as possible, verified, they can, I think, be relied upon as being approximately correct. In Mexico it is exceedingly difficult to obtain the exact figures, whether it be in dollars and cents or in miles..

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REPORTS

FROM THE

CONSULS OF THE UNITED STATES

No. 94.—JUNE, 1888.

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1888.

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CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 94.—JUNE, 1888.

MANUFACTURE OF GLASS BOTTLES IN GERMANY.

Within this consular district, about 5 miles from the city of Düsseldorf, i the valley of the Rhine, at the base of a low range of hills, is located the lass bottle manufactory of Ferd. Heye, of Gerresheim, claimed to be the rgest establishment of the kind in the world owned and operated by one dividual. Its convenience for obtaining supplies is second to none; two nes of railroad, both owned by the German Government, pass the establish-ent, one line leading direct into the yard.

The small German town of Gerresheim, containing about 3,000 inhabi-nts, immediately adjoins the works, the two being inseparable on account the mutual interests involved, and it is properly said here that Gerresheim the glass-works, and the glass-works Gerresheim.

Upon the side hills adjoining the town, within a few hundred yards of the establishment, may be found millions of loads of rich, soft, golden yellow sand of the best quality, while half a mile further away, at another range of hills, are quantities of the best white sand. Supplies may be had for the cost of hauling; both sources are availed of, and are considered of the greatest value to the works.

The town of Gerresheim is located on the line of railroad leading from the Rhine to Berlin, via Barmen and Elberfeld. The section passing the glass factory is said to be the second line of road built in Germany, the first having been constructed from Nuremberg to Kehl, upon which was operated, in 1837, the first engine introduced into this country.

In this connection it is strange to observe that while throughout Germany the greatest improvement has been made in the past twenty years in the matter of good rolling stock, depots, and lighting and heating facilities, yet on the stretch of road between Gerresheim and Elberfeld the crossing of the hills is still accomplished, as it originally was fifty years ago, by means of stationary engines and cables.

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BUILDINGS AND GROUNDS.

The buildings and grounds of the works in actual use cover an area of about 60 acres. The grounds are laid off in divisions, squares, and streets, and are properly graded and paved where necessary. Parks are arranged for the storage of bottles, and tracks constructed for the transportation of material and for other purposes. The buildings are modern in appearance, many in number, and are constructed in a substantial manner of brick, stone, and cement. The smoke-stacks, or large brick cupolas, are ten in number, with an average height of 100 feet, and have the appearance of a village of spires. The grounds are entirely surrounded by a heavy brick wall, and watchmen are stationed at the gate and other exposed points, and no one is allowed to go through the place without permission or unaccompanied by a guide.

Adjoining the works, and within the inclosure of a large park laid out into squares and streets, are built about 400 dwelling-houses, two stories in height, uniform in color and appearance, provided as homes for those of the employés who desire to occupy them at a low rent. Two, and sometimes three, families occupy a house. A small garden adjoins each, shade trees are scattered over the place, and the whole, being neatly paved, drained, and kept in perfect order, presents the appearance of a small village. Those who occupy the houses are furnished fuel and light at cost prices, and everything is done to make them contented. Watchmen are stationed through the streets, regular rules in regard to cleanliness and other matters are enforced, and the best order at all times prevails. At the extreme lower end of the park, near the main gate, surrounded by about two acres of ground neatly laid out with walks, flower-beds, etc., stands the plain and unpretentious cottage home of the owner, Mr. Heye. It is two stories high, the outside being similar to the other buildings, and the interior is well but plainly furnished, without any attempt at display—about the same as a neat American cottage home.

AT THE WORKS.

I made a visit by appointment to the works a few days ago. I was met at the station by Mr. Heye, and was conducted to the office building near the main gate, where I observed in the different rooms about twenty clerks employed, from general appearance, with the greatest system in the arrangement of their several duties. I was accompanied by one of the chief officials through the establishment. I may add here that the main office building is connected by telephone with the cities of Düsseldorf and Cologne, and by special telegraph wire to the main office in Düsseldorf, thus virtually having communication by means of the cable with the entire business world.

CAPACITY OF THE WORKS.

The capacity of the works is about 300,000 bottles per day, but at the present time, and usually, the number of bottles made daily averages about 200,000. A good share of the work under present contracts is for the Amer-

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ican market. For a year or two past the orders from America were small, but since the 1st of January the shipments have increased until they amount at the present time to 300,000 to 500,000 bottles weekly, which are invoiced at the Düsseldorf consulate consigned to dealers in New York, Saint Louis, Milwaukee, Chicago, and Cincinnati, in bills of about 1,000 gross each.

Formerly the wine merchants imported their Rhine and Moselle wines in bottles, but some advantages to be gained in the transaction has prompted them to buy their wine in bulk, ship the bottles separately, and do the bottling in America.

KIND OF BOTTLES MADE.

The different varieties of bottles made at this establishment number now about 5,000, which may be said to include nearly every kind and shape of bottle in existence. Here I found all the different kinds of mineral-water bottles so common in use in America, from the egg-shaped soda through the list, and also in white glass ware, with fancy glass stoppers, all the varieties that are in use in the drug stores. Further there were Irish whisky, English porter, the good old American whisky, 5 to the gallon, large Spanish wine and soda bottles, French champagne of all kinds, Rhine and Moselle wine, and in short, orders filled monthly from North and South America, England, Ireland, Spain, Portugal, Germany, and even remote places, for all kinds, varieties, and colors in existence. Shipments, according to the custom of the trade, being made with breakage at the risk and cost of the purchaser. It was shown by the books that a London firm had ordered annually for years past 10,000,000 to 15,000,000 of a certain kind of mineral-water bottle for mineral water procured from German springs and shipped from London to all parts of the world.

SAMPLE ROOMS.

I next visited, in one of the large buildings, the sample rooms, consisting of two, each about 20 feet square, the walls fitted up with shelves containing about 10,000 to 15,000 bottles, all arranged according to size, number, and quality, and properly labeled, with the number of the mold also noted. The samples included duplicates of all bottles made at the works, besides a complete set of samples of foreign manufacture, such as those from the glass-works of France, England, and the United States. My guide handed me from the shelves bottles made at the glass-works of Baltimore, Md., and with them the same character of bottle made at Gerresheim. The main points in difference would be readily observed, the principal one being the seam always found running up the side of the American bottle and marring its appearance, which by the manner of blowing was obviated here, and the claim made that the American bottle was inferior in that and other respects. The sample room was interesting with its thousands of bottles labeled and arranged in perfect order as to size and color, the room being under the charge of one person, who is held responsible for its care and appearance.

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MOLD ROOM.

In another side of the same building was located the mold room. This room, always kept locked, is about 20 feet wide by 60 feet long, arranged with shelves upon which are placed in regular order the molds of different kinds and sizes. Besides, on the floor, in rows up and down the middle, I observed molds of all kinds placed according to size and number. The uniformity of the labels and arrangement of the great number of molds in the room giving the whole the appearance of order and regularity, and rendering it an easy matter to select from out the number any design wanted without trouble or delay.

LIGHTING OF THE WORKS.

The entire place is lighted by electricity. The electric light, so common in America, is fast finding its way through this entire country, and on one's travels it may be seen at all the railway stations and also at most of the large manufacturing establishments of any note. It is claimed that at this time there are about 250,000 electric lights in use in Germany alone. Chiefly American patents and American agencies have been established all over Europe, the headquarters of the Edison system, doing a thriving business, located at Antwerp under the charge of Mr. Dyer, of Washington, D. C.

The owner of this glass factory, with an eye to future business, purchased a most complete outfit for lighting the entire place from a dealer in Cologne, at a cost of about 10,000 marks, the plant having a capacity for not only the works, but the village of Gerresheim adjoining. The main railroad station of the town is located at the gate of the works. The lights are furnished the Government for the station use at a compensation sufficient to pay a fair interest on the whole investment, and, at a later period, when it is expected the town will avail itself of the convenience, it will be a good paying investment, in addition to the lighting of the establishment, which will then be obtained free of cost.

SUPPLY OF COAL.

The glass factory at Gerresheim is very fortunate in its location as to the supplies for its purposes. The greatest quantity of sand is within a few hundred yards. A small adjoining town furnishes its labor, and the coal-mines of Westphalia, in the neighborhood, supply the required coal at a low price, which is an important item. Within the valley of the Ruhr, beginning at a point 2 or 3 miles from Gerresheim, and running a hundred miles on farther north and east, are to be found extensive and never-failing coal-mines of western Germany, called the "Westphalia Mines." The production last year amounted to about 27,000,000 tons, the largest consumers being the manufacturing establishments of all kinds so thickly scattered over the western section of Germany. The coal used by the glass-works is brought down the valley of the Ruhr and Gerresheim, switched off on a side track, and carried direct into the yard of the works at a small advance over prices at the mines. When surprise is manifested at bottles being manufactured so cheap that they can be transported to the United States, freight, duty, and

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breakage allowed, and sold at a profit in competition with home industries, it may be explained by the excellent location near a base of supplies, exceeding low price of labor, and good management on the part of the conductors of the enterprise avoiding strikes or any interruption in the steady and regular course of business.

NUMBER AND WAGES OF EMPLOYÉS.

The number of persons employed in the entire works vary from 1,800 to 3,000, in which are never less than the former number, including many female employés, the entire number varying according to the contracts to be filled and work on hand. It is a very common thing to see women employed in this country, even in the most menial street service; but at the glass-works their occupation seemed to be confined principally to the packing department and cleaning and clearing up the yard.

In three or four of the large buildings the furnaces are kept steadily going, and the blowing of bottles continued night and day. The men who perform this class of work, considered the most important in the establishment, number alone about 400, and are paid by the piece, or according to the number of bottles made. Each workman has one apprentice allotted to him to learn the trade and as his assistant, and the bottles are all specially marked to show by which set of workmen made.

The men are assured steady employment, prompt pay, and they appear to be perfectly contented and healthy. They all live in either the Heye village or at the town of Gerresheim adjoining. If their houses belong to Mr. Heye they are charged a small rent, about 4 per cent. on the cost of the building, not including the ground, which is charged against their weekly pay. The clothing of the employé is coarse, but clean and comfortable, and the food simple, consisting of beer, bread, coffee, tea, cheese, and vegetables, with meat about once a week. Their contentment is due to the agreeable social conditions among themselves; the absence of real suffering, steady employment, and ignorance of the world that lies beyond the limits of their quiet village. The pay is small, but the cost of living with them is also comparatively light. The highest daily pay of the blowers averages from 3½ to 5 marks (87 cents to $1.20). The furnaces that are kept going at night are run by three sets of hands, who divide up the time and keep the work steady for the twenty-four hours of the day. The excellent lighting of the establishment by electricity admits of the work being carried forward without interruption, and ordinary employés are required to perform about eleven and one-half hours labor each day, going to work at 6 o'clock a. m. and working until 7.30 p. m., with an allowance of one hour for dinner, and both morning and afternoon half an hour for beer, coffee, etc. The wages of apprentices are about 50 pfennigs (12½ cents) per day for the first year, with a slight increase each year; the women generally not over 2 marks (48 cents); other employés from 1½ to 3 marks per day, according to the special class of work engaged upon; 2½ marks being about the average pay of general employés.

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STORAGE PACKING.

On the outskirts of the yard, against the heavy bricks walls, open sheds are constructed where the packing is chiefly done, and in the open squares of the yard, between the streets, parks for storage are well laid out and graded. Some 5,000,000 or more bottles are generally on storage in the yard, piled in perfect order, the whole presenting somewhat the appearance of an ordnance yard with its storage of shot and shell. Sizes and qualities are arranged together, and necessary wooden signs stationed at the head of each pile.

The Government railroad runs through the yard, and shipments for Germany are packed loosely in the cars with straw, bottles for export being in sacks; no charge is made against the employés for breakage. The yard has the necessary supply of trucks, cars, and well-laid tracks for all conveniences. The packing for export is done under the large side sheds, mostly by women; coarse canvas is used for sacks, containing 1 gross, and it is remarkable to see with what dexterity in this packing process each bottle is wrapped in a small bunch of straw—layers made of 1 dozen, with straw between—the whole sewed up, making an oval compact bundle that can be handled roughly without much danger of breakage, and all without the aid of machinery of any kind.

BOTTLE BLOWING.

As is the usual custom in all bottle making, the heated material is taken from the furnace on the end of an iron pipe or tube placed in the mold by the apprentice, and then the process of blowing into shape follows; one of the most noteworthy points, however, is that the rod or pipe is repeatedly turned by the workman during the process of blowing or formation of the bottle, which gives it a perfectly smooth and complete appearance when done, and avoids the ugly seams or ridges often seen up the sides of bottles of American manufacture.

I inquired particularly on this point, and was informed that the workmen in American and English shops refuse, for some reason, to perform this special extra labor of turning the bottle in the mold, which the employés here, according to the custom of the trade, are obliged to do, and, therefore, for that special reason the bottles are claimed to be superior to American manufacture, and, as far as I was able to judge, they were in general appearance. When completed they are carried by boys, three at a time, on a forked iron rod to the cooling-ovens, and not exposed to the air, for three days, that being the time allowed for cooling.

The furnace heat, which does the melting of the material, is produced by gas and not by coal. Adjoining the furnaces are large arched pits sunk below the surface of the ground, in which gas is made from soft Westphalia coal, which is brought direct from the mines into the yard.

The gas when made is stored in cylinders near, and conveyed by 4 to 6-inch pipes direct to, the furnaces and discharged over the top of the mass of melted material into the blaze.

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An attendant at the side of the furnace has the care of supplying gas to the fires, which is done by two different pipes, let in with cold air, to form a more perfect draft. The current of gas is changed from one tube to the other by means of a crank every half hour regularly, the supply and quantity of heat being simple and perfect. In my examination of this part of the establishment I found most complete gas-works under ground. Only perfect bottles are allowed to go out on orders, the piles being carefully assorted, and defective ones used over again as so much material.

MATERIAL OF WHICH BOTTLES ARE COMPOSED.

In the large building with concrete floor connected with the furnaces by means of tracks and cars below, covered passages overhead, is located the mixing place for the material, and it is here prepared for the furnaces.

The sand is handled by means of the yard car trucks, and before use is burned and sifted. The material when prepared is carried from the room by means of the overhead passage in wooden box tubes direct to the blowing furnaces and supplied to the furnaces through small round holes about 12 inches in diameter.

There is no doubt that some secret exists in the composition of this mixture, but general observation only revealed the use of burned and sifted sand, lime, and sulphur in certain proportions.

In conclusion, it may be noted that Mr. Heye, the present owner of the large establishment, a man about fifty years of age, made his beginning in life unaided, and by his industry and perseverance brought to great proportions this well-known factory that bears his name. He laid the foundation a few years ago on the present site with a dozen employés and two small buildings, and his remarkable success is a parallel to the success of Krupp, who, in like manner, founded the celebrated Krupp Gun Works at Essen on the Ruhr. Mr. Heye has recently received from the German Government the title of "Commercien Rath" (adviser), as a recognition of his rare business qualifications.

Since the beginning of this report a contract has been entered into between Mr. Heye and the Apollinaris Mineral Water Company for the delivery within one year of 19,000,000 bottles at the following prices, viz: 58 marks per 1,000 large quarts; 75 marks per 1,000 small pints, 2 per cent. discount.—DUSSELDORF, *March 20, 1888.*

D. J. PARTELLO,
Consul.

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ANNUAL REPORT OF THE EXPORT SOCIETY OF VIENNA.

The results obtained by the export society of this Empire in extending the trade of Austria-Hungary to foreign countries, and the means by which these results were accomplished, are doubtless of interest to the American exporter and manufacturer as well as importer, and I beg leave, therefore, to submit herewith a synopsis of the annual report of this society for the year 1887, which has just been published.

The president of the society congratulates its members upon the practical success which has rewarded their efforts since the organization eighteen years ago, and states that the prominent manufacturers of the Empire have united in a powerful association, under the lead of the export society, systematically extending the trade of the country to Dutch and British India, America, and Australia, as well as to the countries bordering on the Mediterranean. He proceeds to recite these efforts in detail, and reports that during the past year a commercial agent was thoroughly instructed by the society during a term of two months and was sent to Yokohama as the representative of one hundred and twenty-one Austrian firms for the purpose of making collections as well as effecting sales of merchandise on behalf of said firms and that his efforts met with decided success, and that within a few weeks after his arrival in Yokohama with samples of Austrian manufactures large orders were received by the firms who united in this venture.

The report dwells with particular satisfaction upon the favorable results obtained through the establishment of an Austro-Hungarian commercial agency at Buenos Ayres which was organized only about eighteen months ago. A sample depot of Austro-Hungarian manufactures is connected with this agency and large orders have been received by the home manufacturers.

Attention is also called to the World's Exposition in Melbourne, to take place during the current year, and the report states that the invitation of the exposition committee extended to the export society has been accepted and that the requisite arrangements have been made for the exhibition of Austro-Hungarian manufactures, and that more than one hundred of the most responsible firms of manufacturers have already promised to send their exhibits to Melbourne. And that, furthermore, in order to insure a permanent benefit to the exhibitors, and to create a lasting business connection between Austria and Australia, arrangements have been perfected in order to establish immediately after the close of the exhibition a sample depot of Austrian manufactures at Melbourne.

The report states further that the number of members of the society is constantly on the increase and that the demand for the services of the society in making inquiries abroad and in granting required information is proportionately increasing. That, for instance, during the past year 1,574 informations were given to inquiring exporters and foreign importers upon various

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subjects of commercial interest, and that the society has also succeeded in several instances in making collections abroad for its members at a much lower rate of expense than could have been possible by any private effort in this direction.

In order to give members an opportunity to express their views on important questions of commercial interest, and to instruct, if necessary, the board of directors of the export society, monthly meetings were held during the past winter, and the report states that the discussions held at such meetings and the lectures delivered proved of great practical benefit to the general purposes and objects of the society.

THE EXPORT SAMPLE DEPOT AT VIENNA.

This sample depot was established through the efforts of the export society, aided by the very effective and valuable assistance and protection of the ministry of commerce, and contains the following exhibits or samples of Austrian manufactures:

1. Metal wares.
2. Machines, tools, wagons, cars, etc.
3. Stone, earthen, glass, terra-cotta, and porcelain ware.
4. Wooden ware and furniture.
5. Textile goods.
6. Clothing.
7. Leather goods, rubber goods, hair brushes, and feather goods.
8. Paper and polygraphic products.
9. Notions and fancy goods, Vienna specialties.
10. Provisions and natural products.
11. Chemicals.
12. Surgical and hygienic instruments and implements.

To the American importer who buys Vienna specialties, such as fancy goods, fans, bronze ware, leather goods, smokers' articles, etc., this sample depot is certainly an important auxiliary in making his purchases, provided he comes to Vienna personally and does not confide his orders exclusively to brokers and commission merchants. There can be no sort of doubt that this sample depot has materially aided the export trade of this monarchy, and the members of the export society fully appreciate this fact. According to the statement of the president, contained in his annual report, particular pains were taken to give the widest possible publicity to the existence of this depot. The Austro-Hungarian consuls, stationed in foreign countries, were instructed by the ministry of foreign affairs to publish notices and descriptions of the Vienna sample depot in the public journals of their respective consular districts. Twenty-five thousand handbills, printed in five different languages, were distributed and posted by the aid of these same consular officers. In addition to this a catalogue of the sample depot, likewise printed in five different languages and containing the names and addresses of the several manufacturers and exhibitors represented by the depot in question,

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was forwarded to the number of more than 25,000 copies to the said consular officers, with instructions to distribute the same among the importing firms of their respective districts.*

The report states, in conclusion, that more than two hundred foreign importers examined the sample depot during the last year, preparatory to making their purchases, and that with many of these visitors arrangements were entered into on the part of the export society to represent the interests of the exhibitors in their respective localities and to maintain a regular correspondence with the society with reference to the commercial needs and demands of their respective countries.

EXPORT TRADE OF AUSTRIA-HUNGARY TO THE SOUTH AMERICAN STATES.

For some years past the exporters and manufacturers of Austria-Hungary have contemplated the establishment of a new line of steamers to run regularly between Trieste and Rio de Janeiro, and a new contract to be entered into with the Austro-Hungarian Lloyd to the end of carrying out this purpose has recently been submitted to Parliament for approval, and in case of its consummation it is expected that these steamers will begin to run some time during the latter part of the current year.

So far the trade of this country with Brazil has been inconsiderable. During 1887 but sixteen ships, under the Austro-Hungarian flag, landed and cleared from the port of Rio de Janeiro—in all of 15,616 tons burden—14 steamers and 2 sailing-vessels. The total export to this port under the Austro-Hungarian flag, during the period aforesaid, represents a value of 920,288 florins.

When I examined the details of this export trade from Trieste and Fiume to Rio, I was surprised to find quite a considerable quantity of flour as one of the prominent articles of the list: 11,300 barrels of flour were exported from Trieste, and 9,108 barrels from Fiume, to Rio, during 1887. By what strange combination of commercial possibilities it was made profitable to attempt a competition on the part of Austria-Hungary with the United States in the article of flour in a market, so to say, next door to our wheat fields and world-renowned flour-mills, with the important factor of transportation decidedly in our favor and against the Austrian exporter, I was at first at a loss to conjecture. I was inclined to believe that the only plausible explanation was to be found in the sadly reduced condition of our shipping, a condition incapacitating our exporters and manufacturers to take advantage of the close proximity of South American markets as against the European exporter with a subsidized and large merchant marine at his command. I found, however, upon inquiry, that this export of flour from Trieste and Fiume was due entirely to the superior quality of the Hungarian wheat

*I may be permitted to say here that this mode of advising foreign importers of the capacities and supplies of Austro-Hungarian manufacturers and exporters must of necessity be much more effective and successful than the plan recently adopted by American exporters, in sending one single copy of an illustrated compilation of American export firms to the American consuls abroad with the expectation that the European importer, at the invitation of the consul, will call at the American consulate for the information contained in this compilation.

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out of which this flour is manufactured. It is claimed that in the so-called "Banat," a famed wheat district of Hungary, a quality of wheat is grown which has certain chemical properties not found in any wheat raised elsewhere, and that the flour made from this "Banat" wheat will produce the finest Vienna bread in a perfection which can not be reached with any other flour, not even with the very finest produced by American mills. This superiority of the "Banat" wheat also accounts for the fact that considerable quantities of Hungarian flour are exported to England.

JUBILEE INDUSTRIAL EXPOSITION AT VIENNA.

On the 14th of May the Jubilee Industrial Exhibition, which has been in preparation for the last two years, was opened by the Emperor. The manufacturers of the Empire in organizing this exhibition were instigated by a desire to commemorate in a practical manner the fortieth anniversary of the reign of Francis Joseph I. They point with just pride to the great progress which Austria has made upon the field of industry during the Emperor's reign, and proclaim that ever since constitutional government took the place of the absolute monarchical reign the industrial energy and inventive genius of the people have been stimulated to an unusual degree.—VIENNA, *May 17, 1888.*

EDMUND JUSSEN,
Consul-General.

CANADIAN ROYAL LABOR COMMISSION.

[TRANSMITTED BY CONSUL WILLIS Y. PATCH.]

A. T. Freed, of Hamilton, Ont.; Michael Walsh, of Halifax; J. Alfred Clarke, of St. John; Patrick Kirwin, of Quebec; W. A. Gibson, of Ottawa, members of the Royal Labor Commission, with A. H. Blackly, of Galt, Ont., as secretary, were in St. Stephen Saturday and took evidence from several manufacturers and workmen of the town concerning the condition of labor here. The meetings were held in Temperance Hall, the first beginning at 2 o'clock in the afternoon of that day.

G. W. Ganong, of the firm of Ganong Bros., manufacturing confectioners, was the first witness. He had been in the business fifteen years, and the firm now employed from 80 to 125 hands. They consist of adults and children, about half being adults. The youngest employé was about fifteen years of age. Skilled workmen were paid from $12 to $25 a week, and unskilled hands from $6 to $8. Women earned from $3 to $4. They worked ten hours a day. From September 1 to December 20 the firm usually employed a full quota of workmen. There was some night work at that time, for which extra wages were paid at the rate of half a day for three and a half hours. The average number of hands employed was from 80 to 90. The business of the firm is principally done in the maritime provinces and is increasing. The wages in St. Stephen is higher than in Calais, but a comparison between the two places is not fair, for Calais is not a distributing center. Some of the employés of the firm are saving money. Workmen of St. Stephen, as a rule, are better off than those of Calais. The young people employed in the factory are chiefly natives, and the majority of them have a fair English education. Very few of the firm's goods are shipped to Newfoundland and none to the United States. There are separate dressing-rooms in the establishment for males and females. They import some labor from the United States. The wages here are as good as paid there for the same class of work.

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W. F. Vroom, of Vroom Bros., furniture and casket manufacturers, testified that his firm employed 16 hands, 3 of them being boys. From $10 to $12 a week were paid to good cabinet-makers. Upholsterers earn about $2.50 a day. They have no bound apprentices. Boys generally earn good wages when four years at the business. Workmen are given constant employment. They worked ten hours a day. The firm find no trouble with men drinking. A mechanic can get a building lot near town for a reasonable price. Tenement houses rent from $75 to $100, but the supply is not sufficient. The firm import their best furniture woods. They use no Canadian walnut, because it is more convenient to buy in Boston.

J. E. Ganong, of the St. Croix Soap Manufacturing Company, said the company employs 16 hands, who work ten hours a day. Skilled workmen earn $20 a week, but a majority of them are unskilled. Both boys and men are employed, and earn from $4 to $9 a week. They have worked full time for the past year, and but little extra time is necessary. When extra time is worked three and a half hours is reckoned as half a day. They make nothing but laundry soaps, but intend to begin the manufacture of toilet soaps at an early day. A few girls are employed, who earn from $2.50 to $5 a week. The boxes used are put together in the factory by men employed for that purpose. The competition is generally local, and their principal market is the maritime provinces. They make some shipments west. The competition from Montreal is not nearly so strong as it was. The employés appear to be satisfied, and there are no strikes. The hands are all natives, with the exception of the foreman, who is from Boston. They find no difficulty in obtaining sober and industrious men.

B. R. DeWolfe, carriage manufacturer, has been in business for twelve years on his own account. He employs 8 hands. The stock used is generally imported. Blacksmiths get $12 a week, and apprentice boys in the blacksmith shop get from $3 to $3.50 a week, with a yearly advance. Wood workers get $10 a week. Trimmers work by the piece and average $15 a week. Wages are paid every Saturday night in full. He never has any indentured apprentices. He uses English leads in painting. He has used Canadian leads, but never found them as good as the English article, though there has been a decided improvement in the leads manufactured in this country in the past five years. He uses Canadian colors principally, and they are just as good as the American. Canadian colors were better last year than ever before. He does not use any Canadian varnish, because it is not satisfactory. His principal competition is from Ontario, but he finds no difficulty in selling his carriages. A few years ago he had to compete with cheap American carriages, but these are not now sent to this market. He has no trouble with strikes. His employés are generally sober. He employs one American painter. Wages are as high as in Calais. A workman hiring a tenement has to pay from $7 to $8 a month for it. Board is from $3 to $3.50 a week.

T. Winslow Broad, of E. Broad & Sons, ax and edged tool manufacturers, said the firm employ 25 hands, including metal and wood workers. First-class blacksmiths get from $2 to $3 a day, and no skilled hands get less than that. One polisher has a contract for doing all the polishing, and he employs his own men. He is paid a lump sum for the work. One wood worker is employed at $2.50. Forgers work eight hours a day and get $2 to $3. Helpers earn from $1 to $1.50 a day, according to their skill and term of service. The men get continuous employment. With one or two exceptions they are all sober. Five of the men are foreigners, the rest New Brunswickers. They find it necessary to import skilled labor. Hands are paid once a month, and are satisfied with that. As a rule they save money. The firm do not take apprentices. The business is constantly increasing. Most of their goods are sold in St. John, Halifax, and Montreal. Some are sent to British Columbia. There is some competition from Ontario in the maritime provinces. They use English, Londonderry, and Norway iron. For narrow axes the Londonderry iron is very good. Steel is principally brought from the United States. White ash is chiefly used in making helves, and a good quality of that wood is obtained from the farmers in the country.

Lewis Dexter, jr., assistant superintendent of the St. Croix Cotton Mill, stated that the mill employs an average of 650 hands — men, women, and children. There are 957 looms and 32,000 spindles in the mill. Weavers earn from $1 to $1.50 a day, and run from four to

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six looms. Four-loom operators earn from $1 to $1.25 a day. They consist of both men and women. Women as a rule earn higher wages than the men in the weaving room. Mr. Dexter here explained the service a hand entering the weaving room is required to perform before being intrusted with 4 looms. On plain work weavers handle 6 looms, on fancy work only 4. The age of the youngest person allowed to run 4 looms is about fourteen years, and from that they run up to twenty-five years. The wages in the spindle room average 65 to 80 cents a day, according to ability. The youngest employé is about eleven years old. Beamers average from $1.25 to $1.50 a day. They are the best paid of the ordinary hands, and their ages run from fifteen to thirty years. Warpers receive from 85 cents to $1 a day; slashers, $1.50 to $2; dyers, $1 to $1.25; pickers, 65 cents to $1.25. There is a summer and winter system of work in the mill. In summer work is carried on from 6.10 a. m. until 6 p. m., with an hour for dinner and a half-holiday on Saturday; in winter work begins at 6.45 a. m. and ends at 6 p. m., except on Saturday when the hands are allowed to go at 4.30 p. m. It is the custom to fine for bad weaving, and if a man loses any time his month's wages is proportionately lessened. The doors of the mill open outward and afford ample means of egress in case of fire. It takes about five minutes to empty the mill on ordinary occasions. No children are employed under eleven years of age, and these are employed in sweeping and doffing, which gives time for occasional rest. The hands are paid once a month in cash, and requests for advances are very few. The rules of the mill forbid an advance except in extreme cases. There is no flogging or confinement of children. The majority of the operatives are obtained within a radius of 15 miles and from both sides of the river. It is now seldom necessary to import labor, hands trained in the mill being able to fill nearly every position. The morality of the operatives is good and the class of help now employed decidedly better than formerly. Very few of the operatives are unable to read and write. Many of the heads of families employed in the mill own their own homes. Girls pay $2.25 a week for board in the corporation house, but are sometimes able to get it at a lower rate outside. Rent for the houses owned by the mill of the first and second hands is $100 and $75 a year. The St. Croix Cotton Mill is connected with the Canadian Cotton Manufacturers' Association, the object of which is to give cotton as cheap as is consistent with a fair living profit. The matter of hiring help is left with the overseers of the different departments. The average monthly pay-roll of the mill is about $19,000. Local help is better than any that can be imported. There is very little drunkenness among them. He could not tell the proportion of American and Canadian hands. There has been no increase in wages since the manufacturers combined.

Charles Smith, card-room hand, stated that he had been employed in the St. Croix Cotton Mill for seven or eight weeks. He had worked in a cotton mill in the States, having been only thirteen years old when he entered. He then got 45 cents a day; he now gets $1. Wages were better here than in the States when the cost of living is considered. The hours are the same. There is no dissatisfaction among the hands in the cotton mill and good order is maintained in the room where he worked.

John McFarlane, second hand in the ring spinning room of the cotton mill, was examined next. The average pay in the room is $7.50 a week. No trouble exists between the hands. There is no truck system in the mill. Men pay from $3 to $3.50 a week for board, the cost being about the same as on the other side of the river. Operatives are paid once a month, which is remarkably satisfactory. The help generally is intelligent and educated.

C. N. Vroom, manufacturer of wigwams and oil-tanned goods, said he now employs 20 hands, who work ten hours a day. The sewing of the slippers is done by piece-work. The piece-workers earn from $3.50 to $15 a week. Both men and women are employed; some of them do their work at home. The regular hands get employment all the year. Hands are paid every Saturday night in full if they desire it. A skilled workman earns from $1.25 to $2 a day. Boys get $2 a week. The greater part of the manufacture is sold in Ontario and Quebec. Specially tanned leather, which is bought in St. John and Toronto, is used in the work. The hands are paid in cash and groceries, but are not compelled to take groceries. Mr. Vroom stated that he is a partner in a firm which manufactures carbonized stone drain-

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pipes. This business employs 6 hands when running on full time. The market for the pipe is principally local. Sand for the pipe is obtained near St. Stephen, and English and American cement is used. The hands get from $1 to $1.25 a day. A laborer receiving $1 to $1.25 a day can support a family. This is better wages than many other laborers get, the work being steady. Wages are lower in winter than in summer, because men can be obtained cheaper in the winter season.

Mr. G. W. Ganong, being recalled to give some supplementary evidence, said his firm manufactured 1,125,000 pounds of confectionery last year. Granulated sugar, refined in Canada, is principally used. Sugar has been cheaper the past year than formerly. The quality of Canadian refined sugar is fully equal to the American refined. The firm manufactures a large quantity of chocolate goods. Mott's, of Halifax, cocoa is chiefly used in the work, the last order of the firm being 6 tons. The business of the firm is constantly increasing, and last year amounted to $225,000. The goods are sold in Ontario and Quebec, as well as in the maritime provinces. Last year Ontario took $25,000 and Quebec $40,000 worth of the firm's manufactures. Help is paid every two weeks.

Frank Murphy, confectioner in the employ of Ganong Bros., said he has been with the firm for about six months. Previous to coming here he worked nine years in the United States. The wages of journeymen run from $12 to $25, the average being $15. Considering the cost of living in the United States, wages are better in Canada than there. There are 3 boys and 5 girls employed in his department. Boys going in get $4 a week, with a yearly advance. The conveniences and appliances of the factory compare favorably with those of similar establishments in the United States. The operatives here are superior to any with whom he worked in the States. They work ten hours a day and get continuous employment. He is satisfied with ten hours work and thinks that more work can be done under the ten-hour than under the eight-hour system.

George H. McAndrews, foreman of Ganong Bros. factory, was called next. He controls the hiring and discharging of help. The age of the youngest girl employed in the factory is sixteen, of the youngest boy, fifteen. Workmen can get rentals for from $80 to $100. The average wages paid to skilled labor is $15 or $16 a week. The habits of the hands are good. There are never any strikes, and no necessity exists for them. The factory runs the year round. There is no system of fines in vogue. Girls are paid from $2 to $4 a week. He does not think that women can do as much as men.

George Jones, soap-maker in the employ of the St. Croix Soap Company, said the average wages paid the hands is $9 a week. They get double pay for extra time. Two boys are employed at $5 a week. Boys are simply helpers and do not go to learn the trade. The employés are paid once a week in cash.

William Gibson, an upholsterer in Vroom Bros.' furniture factory, said the hands are not often required to work overtime, and when they do they are paid at the rate of time and a half. One apprentice is employed in his department. There is no great difference between the wages paid in St. Stephen and Calais and little in the cost of living in the two places.

Hiram Mills is employed in carbonized stone drain-pipe work. When not doing that he works as a carpenter. The wages of carpenters run from $1.75 to $2 a day, and they get about eight months' employment in the year. He has lived in Fredericton and along the St John River. The cost of living is greater here than there, but the pay is better. The carpenter trade is good and quite a number are employed at it here.

John Leiper is a fixer in the St. Croix Cotton Mill. Previous to coming here he worked in Scotland. The relations between employer and employed are satisfactory in the mill. A workman has to pay $7.50 a month for a house in Milltown. In Scotland the same kind of a tenement would cost $50 a year.

William Fraser, furniture painter, works by the piece, and his average earnings are $18 a week. He has worked in Calais. The wages paid in the furniture line are about the same in both places.

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T. M. Boyd works in the employ of C. N. Vroom and makes wigwam slippers. There are 9 employés in his department. They work by the piece and the average pay is $8 or $9 a week. There are no girls employed.

N. E. Sederquest, cabinet-maker for Vroom Bros., works by the day and averages $11 a week. It is difficult to obtain cabinet-makers. Business is better here than in Calais. He has worked in Minnesota. Wages are better here than there, when the cost of living is taken into consideration. He knows mechanics who left St. Stephen for the West some time ago and were glad to get back. There are planers, circular and jig saws, and the usual machinery for furniture making in the factory. The machinery is well enough protected to prevent accidents. A number of persons whom he knows live in Calais and work in St. Stephen.

J. M. Murchie was summoned before the commission to give a statement concerning the condition of the country now as compared with that of a few years ago. He said the price of the necessaries of life is lower now than ever before. While $10 per barrel had to be paid for flour ten years ago, an excellent grade can now be obtained for $5.25. The price of beef and of pork has not changed appreciably, while tea and coffee, sugar, and other household articles are much lower. Ten years ago grocers gave 7 or 8 pounds of sugar for $1, they are now able to give 12 pounds for $1. Canadian sugar is equal in quality to that refined in the United States. There is no "combine" among the wholesale dealers here and no difficulty exists among the traders. The trade of the town is in a healthy condition, as it has been for several years past. The retail trade has not increased as largely as it might, because of the establishment of country stores in different parts of the country. These take large portions of the trade formerly done in town and prevent the rapid increase of retail trade. The wholesale trade of the town is largely increasing from year to year. The industries started here during the past few years have greatly assisted trade, and without them the business of the town would be in a bad way. Business was never any better for the grocers than it is now. The price of fuel has not changed very much in several years. Hard wood sells at about $4 a cord and soft wood at $2.50. The working people burn both wood and coal. Hard coal is worth about $5.50 a ton. Considerable soft coal, worth about $4.50, is burned. There is not much difference between the price of clothing in Calais and St. Stephen. Woolens and the cheaper grades of boots and shoes are lower on this side, and shipments of boots and shoes are made to Calais from Canadian houses. The prices of these goods are lower than they were ten years ago. The price of potatoes last fall was about $1 a barrel. The prices were higher last fall than usual. There is very little poverty among people able to work, and they are more temperate than they were five years ago. The educational system of New Brunswick is one of the best in the world, and St. Stephen has some of the best schools in New Brunswick. House rents are higher than formerly. The tendency is toward better houses and more comfortable homes, and rents are much lower than in the United States. The taxes of men without property in town amount to from $7 to $10 yearly, and men with a small property are taxed from $12 to $15. Mr. Murchie gave to the commission a very interesting description of the improved condition of the farms and farmers of the country, as instanced by their use of labor-saving machinery and the introduction to their homes of many of the luxuries of life. — THE ST. CROIX COURIER (ST. STEPHEN, N. B.), *May 10, 1888.*

SILVER-LEAD ORES OF MEXICO.

I have made a careful study of the Mexican business, having spent four out of the last six months in that country, and I think I know whereof I speak. At least 95 per cent. of the ores brought to this country are bought for their splendid fluxing qualities. The Sierra Mojada mines, in the State of Coahuila, are by far the largest shippers into the United States, and their product is smelted at El Paso and Kansas City. These ores contain a large percentage of both lime and iron, and are as good as any carbonates ever produced in Leadville. As a

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citizen of Colorado and one who has the interests of the State at heart, I believe that it would be a great thing for our mines if we could have 500 tons per day of these ores in Denver. At least 75 per cent. of our ores are either refractory or are entirely free from lead, and if our smelters had such a product it would enable them to treat a much larger quantity of these ores, thus giving the miners a better price for their product and also giving employment to a good many more men.

Denver and Pueblo are to-day smelting at least 1,000 tons of ore daily. About 75 per cent. or 750 tons of this is Colorado ore. If by getting a good fluxing ore to mix with ours, the smelters would be enabled to reduce the price of smelting $2 per ton, this alone would about wipe out the $600,000 which J. L. H. claims was lost to this country by non-payment of duties. Again it must be borne in mind that the importation of 15,000 tons of lead in 50,000 tons of ore paid something to our railroads and gave employment to quite a number of men. The great bulk of this ore came through El Paso on which our railroads received at least $7 per ton, so that it is safe to say that at least one-half of this $600,000 was paid out for freights in this country.

AMEND THE FREIGHT RATE.

The distance from El Paso to Denver is only 785 miles, and our people instead of advocating the placing of a duty on these ores should see to it that the railroads give us a lower rate of freight than Kansas City, which is at least 500 miles farther from this point of shipment. When the railroad was completed to Aspen there was a great demand for these ores, but to-day, owing to some refractory matter contained in them, they are rather a drug on the market, or I should say a much higher charge is made for smelting them simply because the smelters are short of good fluxing ores. If Aspen alone could get its ores treated in Denver for $2 per ton less than at present it would make a difference to that camp of at least $150,000 per year. This is very conservative figuring. If the railroads would allow us to compete with Kansas City and enable us to handle these Sierra Mojada ores, our smelters could easily handle all the refractory ores which might be offered, and pay good prices for them. I saw the analysis of one lot of ore — 100 tons — shipped from Mexico, which while it only contained 15 per cent. lead, the excess of iron and lime over silica was 33 per cent.

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It is well known that the English are heavily interested in Mexico both in mining and smelting, the Chihuahua smelter being one of their properties, and all the bullion made in Mexico goes to England. The price of lead in New York is governed by that of London, and in order to prevent them from shipping into this country our price is always a few points below that of theirs with duty added. One concern in Mexico, not a very large one at that, ships 300 tons of lead bullion per month to England via the United States, as it is carried through our country in bond. The English find that the shipment of ores containing lead into this country is hurting their bullion trade and they naturally want it stopped. Supposing the 15,000 tons which J. L. H. claims were shipped into this country last year had gone to England in the shape of bullion, would it not have affected the market there and had a corresponding effect on the New York prices? If J. L. H. is correct in his figuring that the importation of 15,000 tons of lead into this country from Mexico affected the price here to the extent of one-half a cent per pound, it is natural to suppose that this same quantity of lead imported into Great Britain, in the shape of base bullion, would have had the same effect upon the Engligh market.

THE GREAT SMELTING CENTER.

I believe that the United States should be the great smelting country of the world, and while we have large quantities of ores in our mountains, still many of them are of a refractory character, and we should not hesitate to use those of other countries when they can assist us to put more money into the pockets of our people.

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—JAMES F. MATHEWS IN THE CITY OF MEXICO IRON REPUBLIC, *May 17, 1888.*

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CARAVAN TRAFFIC IN ASIA MINOR.

There are at least three great routes of traffic which would be affected by the proposed railroad in Asia Minor, viz: The Suez Canal and the caravan routes from Trebizond, on the Black Sea, and from Alexandretta, on the Mediterranean. The traffic between Alexandretta and Aleppo alone employs ten thousand camels. The cost of transporting a ton of goods from Aleppo to the sea-coast is, I am told, £4 to £6, a sum quite prohibitory of a large class of goods. With the cheaper rates allowed by a railroad it is safe to say this traffic, already considerable, would be increased tenfold. While this particular route is not covered by the proposed railroad referred to, these facts may be taken as an indication of the amount of through traffic which would be diverted to a railroad connecting Constantinople with the further East.—SIVAS, ASIATIC TURKEY, *May 18, 1888.*

H. M. JEWETT,
Consul.

TEAS OF FORMOSA.

The tea season of 1887–'88 is now practically closed at this port, as the last of the crop of Amoy and Formosa oolongs grown in 1887 has been sold and gone forward to New York during the last month. New teas, grown this year, will begin to arrive by the 1st of May. The crop of 1887 moved very slowly, owing to the unsatisfactory prices prevailing in the United States, where over 90 per cent. of the teas of Formosa and Amoy find a market; 18,297,617 pounds having been exported from this port to the United States during the past year, against 18,022,877 pounds during the year preceding. Prices have averaged lower during the past year than the previous year.

The quality of the crop was a good average as compared with former years. Perhaps the Amoy oolongs did not maintain their quality quite as well as those of Formosa. The Chinese do not seem to make any progress in the care of the tea-plant or the caring of the leaf; nor do they seem to consider the commercial reputation of their teas as of any consequence; hence, evidences of improper handling and adulterations are not unusual. They are trifling with the future of their great staple with reckless temerity. The local taxes, squeezes, and the export duty, the latter being assessed without regard to value or quality, are injuring the trade in China, and in a corresponding ratio stimulating the tea industry in Japan, India, and Ceylon.

During the closing months of the past tea season the export duty alone was fully 30 per cent. of the market price of Amoy oolongs. This is a short-sighted policy, which will, if persisted in, with other causes bring lasting injury and sure but lingering decay upon the tea trade of China.—AMOY, *April 20, 1888.*

WM. S. CROWELL,
Consul.

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FOOCHOW TEA TRADE.

A few musters of tea were sent around on the 29th of May, but owing to a dispute with the tea guild as to the terms on which buying was to be conducted musters were withheld and business was suspended. An agreement having been arrived at, musters were again sent around on the 10th of June, and the market was then fairly opened. Prices averaged from 20 to 30 per cent. lower than at the opening of the market in 1887. The quality of the tea was generally inferior.

The first steamer for London left on the 20th of June, 1887, and the last on the 3d of April, 1888, the season having extended over a much longer time than usual.

The first invoice for the United States was certified on the 11th of June, 1887, and the last on the 24th of March, 1888.

The total export during the season, as per customs returns, was 99,087,467 pounds, including 6,300,000 pounds of brick tea shipped north in March, April, and May, 1887, the season for the movement of brick tea not entirely coinciding with the general tea season. Of this there were sent to—

	Pounds.
Europe	46,178,506
Australia and New Zealand	23,810,303
America	5,247,129
South Africa	1,480,746
Coastwise, south	3,689,226
Coastwise, north	18,681,557

Of the tea sent to Europe 44,549,478 pounds are reported as for London and 1,052,728 pounds as for the continent.

Of the tea sent coastwise north, 15,675,034 pounds were brick tea for Russia, via Tientsin. The tea is described as—

	Pounds.
Congou	67,709,617
Souchong	6,343,840
Oolong	4,736,915
Scented Orange Pekoe	3,924,590
Scented Caper	93,331
Flowery Pekoe	276,345
Green and sorts	58,235
Mixed	269,560
Brick tea	15,675,034

The total exportation was 3,468,775 pounds less than the preceding season. The export of brick tea was, however, 6,748,929 pounds more than the previous season.

The amount of tea sent to the United States, as per invoices certified at this consulate, was 4,704,365 pounds. The previous season it was 7,191,235 pounds. The tea sent to the United States the past season was classified and distributed as follows:

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EXPORTS:	Pounds.
Oolong and Souchong	3,493,222
Congou and Souchong	1,161,444
Scented Orange Pekoe	10,963
Flowery Pekoe	1,951
Mixed and undescribed	6,785
DISTRIBUTION:	
New York received	4,204,278
San Francisco received	423,401
Chicago received	51,276
Philadelphia received	25,410

Of the tea sent to New York 28,276 pounds went via Hong-Kong and San Francisco, 2,600 pounds via Hong-Kong and unknown routes, 213,252 pounds via Amoy, 351,050 pounds via London, 120,433 pounds via Vancouver, 3,488,667 went direct, of which 5,133 pounds were in bond for Boston. That sent direct was carried in seven British steamers, which took part of their cargoes at other ports.

The tea for San Francisco was all sent to Hong Kong to be forwarded thence, 130,851 pounds by steamer and 292,550 pounds by sailing vessel. This amount to San Francisco does not include the 130,851 pounds sent to San Francisco in bond for New York.

Most of the tea invoiced for Chicago and Philadelphia was sent via Vancouver by the Canadian Pacific steamers, which carried in all 190,605 pounds of that sent to the United States.

The invoiced value of all the tea sent to the United States was only, Mexican $938,222.27 = United States gold $736,588.36; the previous season it was, Mexican $1,567,408.43 = United States gold $1,277,153.17.

It will be noted that considerable tea intended for Canada, which in former years was sent via New York or San Francisco, was the past season shipped direct to Vancouver by the steamers of the Canadian Pacific line.

During the season sixty-nine British steamers cleared for London, fifteen for Australia and New Zealand, and seven for New York. No other vessels are reported as having taken part in this trade. Most of these vessels took part cargoes at other ports.

The whole tea trade of Foochow is in a most unsatisfactory condition. Merchants see no prospect for the revival of the trade unless measures are taken to put China upon an equality with Indian teas by a reduction in the heavy internal taxation and export duty, improved methods of preparation, and better facilities for internal transportation. But no one here expects the Chinese Government to give up its exactions or that the other desirable changes will be soon adopted.

Shippers of fine teas to London are said to have made profits this year solely because there was a scarcity in fine teas from Hankow. But in cheap teas losses are generally reported.

The Australian market, which of late years has been most certain to yield a profit, during the season under review has been crowded with such a quan-

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tity of poor tea that loss has quite generally followed shipment. The Chinese dealers complain that they also have suffered severe losses.

The Russian brick-tea trade is alone supposed to be flourishing.—FOOCHOW, *April 19, 1888.*

J. C. A. WINGATE,
Consul.

POSTAL SAVINGS BANKS IN GREAT BRITAIN.

My object in this report is to exhibit briefly the conspicuous features of that commendable system known as the postal savings banks, apart from the several other systems of savings banks operating throughout Great Britain.

Postal savings banks have been evolved from what had gone before in efforts made to reach that which appears now to represent the sum of the labor and experience of the legislators and philanthropists, who have been hand in hand in the institution and furtherance of a system of savings banks that would meet the high object to be attained through a guaranty of absolute security and economy of operation.

Those persons who have so zealously given their best efforts to the establishment and maintenance of savings banks have looked beyond the direct good to be accomplished in enabling the poor to provide for a rainy day to the indirect larger and nobler purpose of inculcating habits of thrift and frugality, and nullifying, so far as these habits will, the vices of improvidence and intemperance, which are held to be the twin destroyers of families, the order of society, and the stability of nations.

The claim of priority for Great Britain in the establishment of savings banks has never yielded to that of either Germany or Switzerland that they were earlier in the field. During the twenty years subsequent to the year 1778 a number of schemes were conceived tending to results that were afterwards reached both in Great Britain and on the continent. That savings banks were an accepted and recognized institution in Great Britain in 1817 is very certain, for in that year they became the subject of legislation, and, until the establishment of the postal savings banks, they were projected and sustained by private influence and governed and maintained without expectation of profit, but purely through motives of benevolence. This system still exists and is known as the "old savings banks." Their imperfection arises from a want of security of a kind to command public confidence. Being dependent, as they largely are, upon the continued solvency of the trustees, the best intentions toward the depositor does not prevent the occurrence of disasters which shake public confidence and destroy their usefulness, for, while the act of Parliament of 1817 gave greater security as far as it involved the responsibility of the Government, this involvement only comprehended liability to the extent of the funds actually deposited with the state, the Government having no cognizance or supervision of any discrepancy that may occur between the amount held in trust and the total amount of deposits, and

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as the act fails to fix the liability of trustees, the public may be deluded by a false sense of safety through the supposition that the Government security is ample.

To this cardinal objection to the old system may be added the minor ones, that they are often hampered with rules which, more or less, defeat their object, such as making payments compulsory, placing obstacles in the way of withdrawals, and demanding certificates as to the moral character of depositors, and so forth.

The disposition of the Government to interpose in the matter of savings banks, manifested by the act of 1817, was destined to be more pronounced later, but notwithstanding the frequent agitation of the question, it was not until May, 1861, that legislation that met public expectation was enacted, and a bill, entitled "An act affording additional facilities for depositing small savings at interest, with the security of the Government for the due repayment thereof," was passed, thereby establishing the postal savings banks. This bill was offered and its passage secured through the exertions of Mr. Gladstone, who was at that time chancellor of the exchequer, and to him is freely accorded the excellence of its details. It is said that the country at once recognized the universal boon of a bank maintained at the public expense, secured by the public responsibility, with virtually the whole Empire for its capital, with a branch in every town, and its doors open at all hours, and securing to the depositor a fair amount of interest. That the public appreciated the good to come of this institution is evinced by the alacrity with which it bestowed its patronage. On the 16th day of September, 1861, the post-office savings banks were opened to depositors, and on that day 435 deposits were received. At the end of the following year 2,535 offices were open, and nearly £2,000,000 had accumulated, while ten years later, so manifest was the hold upon popular regard, the number of depositors had increased to nearly one and a half millions, and the amount of deposits, including interest, reached something more than £19,000,000.

The last data attainable cover the completions of the workings of the system for a quarter of a century, and mark the amazing progress of the institution in public favor. The end of the year 1886 found the number of depositors increased to 3,731,421, and the amount to their credit standing at £50,874,338. At this time nearly every money-order post-office in the Kingdom had a savings bank attachment, the offices numbering 8,351. If reckoned from the number of accounts open at the end of the year, one person in every ten of the population had availed himself of the privileges of these banks, or, if reckoned from the number of deposits, about one person in every five. It is especially interesting to note that a great preponderance of the depositors were of the poorer classes, indicating that the benefits of the institution were being enjoyed by those for whom it was intended, and that the object of the founders and promoters of the scheme has been eminently realized. The effect of the growth and development of the post-office savings banks upon the old savings banks has been to reduce their number, which

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was 640 in 1861 to 404 in 1886. The number is being further reduced by constantly recurring transfers of accounts from the old banks to the new. The policy of discontinuing the old savings banks altogether, or, at any rate, withdrawing what Government support they receive, has been actively advocated in influential quarters, it being urged that the continued maintenance of the old system, involving considerable annual expense, is a waste of charitable effort, as the post-office savings banks offer so many more facilities. Great Britain has long since extended this system of banks to her colonies, and postal savings banks are an established institution in Canada and Australia. We find that France, Germany, Austria, Italy, Belgium, Holland, and Japan all have in successful operation this system of savings banks. The postmaster-general says in his last report that information concerning the system has been asked by several other governments.

In what follows I shall endeavor to explain the details of operation of this system of savings banks, together with something of the plans of annuities and life insurance which are operated in conjunction with it. All of the 8,351 postal savings banks in the United Kingdom are authorized to receive and disburse deposits. These are distributed and governed with the sole view of public convenience, and to accommodate the largest class of patrons, which is composed of the working people. Business is continued until a late hour of the day, and on Saturday deposits are received up to 8 p. m.

Deposits of 1 shilling, or any number of shillings, are received, subject to the limit of £30 in one year or £150 in all, exclusive of interest. When the principal and interest together standing to the credit of any one depositor amounts to the sum of £200 all interest ceases until the amount is reduced. Interest at the rate of 2½ per cent. per annum is allowed on every complete pound deposited, and is computed from the first day of the calendar month next following the day on which a complete pound shall have been deposited, or on which deposits of less amounts shall have made up a complete pound, up to the first day of the calendar month in which moneys are withdrawn. The interest is calculated on December 31, and at that time credited to the account of the depositor. Additional deposits are also received for immediate investment in Government stock for the payment of premiums on insurance and for the purchase of annuities. No account is opened for a deposit of less than 1 shilling, but a person wishing to save as little as 1 penny can do so by the purchase of a penny stamp, which is to be affixed to a form that may be obtained at any post-office. When twelve stamps have thus accumulated an account may be opened.

Every depositor, on making his first deposit, is required to specify his full name, occupation, and place of residence, and make and sign a declaration which pledges that he will abide by the regulations, and that he has no deposit in any other post-office savings bank in Great Britain or Ireland. This declaration must be witnessed by the officer who receives the deposit, the minister or church warden of his parish, or a justice of the peace. Deposits may be made by, or for the benefit of, any person under twenty-one

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years of age, and repayments are made to such minor after the age of seven years in the same manner as if he were of full age. Under the age of seven the declaration must be made by one of the parents or a friend on behalf of the minor.

Deposits and withdrawals are allowed to be made by married women separate and distinct from the control of their husbands. Deposits may be made by a trustee on behalf of another person in the joint names of such trustee and the person on whose account such money shall be so deposited; but repayment of the same, or any part thereof, will not be made without the receipt of both of said parties or the survivor, or the executors or administrators of the survivor. Trustees of any charity, provident, or friendly society, or penny or school bank, or other savings bank, which have been approved by the proper authorities, may deposit their funds without restriction as to the amount in the post-office savings bank, provided always that such deposits shall not be of less amount than 1 shilling nor of any sum not a multiple thereof. Deposits are immediately entered in the depositor's book by the officer receiving it, said officer affixing his signature and the stamp of his office to each entry. In addition to this each deposit is acknowledged through the post by the savings bank department at London. This acknowledgment will be addressed to any designated post-office to be called for.

Once in each year, on the anniversary of the day on which the first deposit was made, if possible, the depositor is expected to forward his deposit-book to the controller of the savings bank department at London for comparison with the books of that department, and for the adjustment of the interest. When a depositor wishes to check out or withdraw the whole or any part of the sum standing to his credit he must make application for the same on a printed form which is furnished him. This form, properly filled up, is to be forwarded by post, as if an ordinary letter, to the department at London. In return he receives a warrant for the amount required, which warrant is cashed at any post-office savings bank. These forms, as well as the deposit-books, are passed through the mails without any postal charges or postage-stamps whatever.

While the greatest facilities are offered, and no unnecessary delay is occasioned by the requisition for withdrawals having to go to London, yet, the inconvenience to those living at a considerable distance from London may, at times, be important, and the question of having several centers through which warrants for withdrawals may be issued is being discussed. As an offset to this inconvenience, however, the great boon of virtually having a bank account at once in many places is urged; for, practically, this is true, as deposits can be made or withdrawal warrants secured and made payable in any of the thousands of existing banks, and a depositor may be said, indeed, to carry an account in every city and town throughout the United Kingdom.

The limit of the deposit of any one person being fixed at £200 is supposed to be made through the indisposition of the Government to put itself

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in competition with the banking community. No very great amount of complaint is made against this restriction, as some relief is found in the investments allowed in Government stock, annuities, and life insurance. The regulations governing these are to be next mentioned. Depositors can become holders of Government stock through the medium of the post-office savings banks. Not less than £10 can be invested at one time, and not more than £100 will be credited to an account in one year, or £300 stock in all. For the purpose of these investments deposits may be made to the value of £100. These sums are altogether irrespective of the limits of ordinary deposits.

The postmaster-general is empowered to insure the lives of persons of either sex for not less than £5 or more than £100. An insurance may be effected by any person not over the age of sixty-five or under the age of fourteen years, or, if the amount does not exceed £5, not under the age of eight years. The postmaster-general is also empowered to grant immediate or deferred annuities for not less than £1 or more than £100 to any person not under the age of five years.

All persons whose lives are insurred, or to whom annuities are granted, have direct Government security for the full payment of the money at the proper time. All premiums for life insurance or annuities are payable through the medium of the savings banks deposit accounts, and will be accepted in addition to ordinary deposits and deposits for immediate investment in Government stock.

All persons insuring their lives or purchasing annuities necessarily become, if not so already, savings bank depositors; their premiums are, without any trouble to them, deducted from their deposits. The money in the bank can be increased by deposits of not less than 1 shilling in any post-office savings bank, or by the use of the penny postage-stamp slips the provision can be made in sums of 1 penny at a time. Furthermore, a person may direct that the interest on money deposited may be applied to the purchase of an annuity or the payment of the premium of life insurance.

The subjoined table clearly indicates the steady progress and development of postal savings banks since their foundation, in September, 1861, to the close of December, 1886. The low cost of management may be noted, and is especially remarkable when it is known to include the extraordinary expense of putting the system into operation.

It will be seen that the average amount standing to the credit of each open account has maintained singular uniformity through the series of years which the table includes, and marks, unerringly, the fact that the people of small means are those who are more largely being benefitted by the system. It is a matter of great regret to the writer that he could not include in this table a compilation showing the social grade, or at least the occupation, of the depositors. Such figures are of record, but unfortunately are not in form to be obtained without very considerable expense.

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Year.	Number of post-office savings banks.	Number of deposits.	Amount of deposits.	Cost of management.	Number of accounts remaining open at close of the year.	Amount, inclusive of interest, standing to the credit of all open accounts at close of the year.	Average amount standing to credit of each open account at close of the year.
							£. s. d.
From Sept. 16, 1861, to Dec. 31, 1862	2,535	639,216	£2,114,669	£20,591	178,495	£1,698,221	9 10 3
1863	2,991	842,848	2,651,209	25,401	319,669	3,377,480	10 11 4
1864	3,081	1,110,762	3,350,000	45,856	470,858	4,993,123	10 12 1
1865	3,321	1,302,309	3,719,017	49,527	611,384	6,526,400	10 13 6
Average, 1866–'70	3,815	1,802,031	5,232,108	62,803	967,066	11,632,214	12 0 6
1871	4,335	2,362,621	6,664,629	69,427	1,303,492	17,025,004	13 1 2½
1872	4,607	2,745,245	7,699,916	78,404	1,442,448	19,318,339	13 7 10
1873	4,853	2,917,698	7,955,740	84,160	1,556,645	21,167,749	13 11 11½
1874	5,068	3,044,692	8,341,256	99,616	1,668,733	23,157,469	13 17 6½
1875	5,260	3,132,433	8,783,852	122,325	1,777,103	25,187,345	14 3 5½
1876	5,448	3,166,136	8,982,350	125,912	1,702,374	26,996,550	15 17 1½
1877	5,668	3,267,851	9,166,738	152,184	1,791,240	28,740,757	16 0 11
1878	5,831	3,360,636	9,485,391	448,543	1,892,756	30,411,563	16 1 4
1879	6,016	3,347,828	9,887,109	192,280	1,988,477	32,012,134	16 2 0
1880	6,233	3,755,689	10,301,152	188,891	2,184,972	33,744,637	15 8 11
1881	6,513	5,699,876	11,867,155	200,574	2,607,612	36,194,495	13 17 7
1882	6,999	6,151,469	12,821,230	221,653	2,858,976	39,037,821	13 13 1
1883	7,369	6,297,368	13,575,167	248,180	3,105,642	41,768,808	13 9 0
1884	7,756	6,458,707	14,510,411	248,618	3,333,675	44,773,773	13 8 7
1885	8,106	6,474,484	15,034,694	256,402	3,535,650	47,697,838	13 9 10
1886	8,351	6,562,395	15,696,852	290,555	3,731,421	50,874,338	13 12 8

The average percentage of cost of management for the whole number of years to the total funds in possession of the post-office savings banks is something less than five-eighths of 1 per cent. It will be noted that the money specified in above table is British. The value in dollars can be closely approximated by multiplying by five. The increase above shown in the cost of management in 1864 is caused by the payment during that year of various charges belonging to 1863. The outlay for management in 1878 includes the sum of £214,434 for arrears of postage for the nine years from April 1, 1868, to March 31, 1877, and also £73,419 paid on account of buildings for offices. In 1879 and 1880 the cost includes the sums of £25,564 and £16,373, respectively, paid for the same purpose. These several sums are taken into account in the calculation which brings the expense of management to the remarkably low rate of five-eighths of 1 per cent. —LEITH, *April 2, 1888.*

WILLOUGHBY WALLING,
Consnl.

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RAILROAD IN CORSICA.

Until February 1, 1888, the population of Corsica had been in the unique situation of a people civilized, intelligent, and equipped with telegraphs, steamship communications, and many other modern improvements, but entirely destitute of railroads. The first Napoleon included his native island in the superb system of graded and macadamized roads which were extended throughout France, and during nearly the whole of the present century the postal service, by diligence, has been as good in Corsica as in almost any part of the continent. The stage journey between Bastia and Ajaccio has been famous among travelers for generations. Over these smooth, hard, carefully-tended roads freight has been hitherto transported in trains of carts, each drawn by from two to four or five mules or horses geared tandem, and capable of hauling down from the interior to the villages, and ports along the coast, immense loads of lumber, charcoal, fruits, wine, and other products of the island.

But railroads are an essential adjunct of modern commerce; without them the mines of iron, lead, copper, antimony, and zinc in the interior could not be profitably worked, and the export trade of the island could not compete with that of Italy and France. Accordingly, soon after the organization of the present French Republic the Corsican deputies began to demand for their picturesque island a railway system which, besides its commercial advantages, might, in case of war with a foreign power, become essential to a successful defense. The Corsicans, with their peculiar character and history, are not generally business men; there are few wealthy capitalists among them, and the railroads could not be built as a local enterprise. The high range of mountains which traverses the island from Cape Corso to Bonifacio, the spurs of which in many places run down to the coast and terminate in abrupt headlands, would necessarily make the work of construction expensive, while the high cost of operating lines involving heavy gradients and enjoying only local traffic rendered the profit of the undertaking more than doubtful.

The national Government came to the rescue and surveyed the main line from Ajaccio, the capital, to Bastia, the principal sea-ports. These cities are about 95 miles apart, and the road from the one to the other crosses the central mountain range near its center and divides the island into two nearly equal sections. Work was begun at Bastia, on the northeastern coast, seven years ago, and on the 1st of last month the road was opened for traffic as far as Corte, the ancient capital, a distance of 45 miles. The track has a gauge of 1 meter (39.37 inches), and the work was so difficult, by reason of the high grade and numerous rock cuttings to be overcome, that its cost, even in that country of cheap labor, has been $33,250 per mile. Thus nearly half the main line has been successfully opened amid great rejoicings among the Corsicans, a large majority of whom had never before seen a locomotive.

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From Corte to Ajaccio, on the west coast, the distance is 50 miles, over a large part of which distance the line is graded, but the tunnel, which pierces the mountain near the summit, 10 miles south of Corte, is a difficult and costly task which can not be finished in less than a year, so that it will be probably two years from this date before the entire route will be completed.

From Ponte Leccia, in the valley of the Golo (see accompanying map), a branch, 46 miles in length, leads northward to Calvi, an important port on the western coast. This branch is also in course of construction, and will be finished in two years.

On leaving Bastia the railway runs due southward along the eastern coast to Casamozza, in the valley of the Golo, where it turns abruptly westward and ascends the valley of that stream to Ponte Leccia. From Casamozza a branch, 39 miles in length, extends southward along the shore, through the most fertile part of the island, to Ghisonaccio, where the plain ends and the mountains come down abruptly to the sea. Of this branch 29 miles, or nearly two-thirds, is finished, and was opened to traffic last month, so that two-fifths of the entire contemplated system is at present in operation. The branch from Casamozza to Ghisonaccio presented no difficulties, and cost $18,000 per mile.

The main line, from Bastia to Ajaccio is a national work, built by Government engineers at the expense of the state. The branches to Calvi and Ghisonaccio are being built by departmental companies with money furnished by the state, upon which the companies guaranty a certain annual interest.

The effect of the system, when completed, upon the prosperity and progress of Corsica can not fail to be important and valuable. Products of the interior, which have hitherto been almost worthless for want of a market, will then become valuable, and the purchasing power of the people will be correspondingly enhanced.

At present Corsica exports to the United States little except candied fruit, and receives in return petroleum and leaf tobacco, which last may be imported free of duty under the special tariff law which applies to Corsica. The Corsican wines were as well known in our country as they deserve to be a large American trade in them might be developed. There are almost no manufactures on the island, and it offers a promising market for cotton goods, sewing-machines, farming tools, and general hardware. Corsica belongs to the consular district of Marseilles; the only United States consular agency in the island being at Bastia, while Great Britain maintains an exclusive consulate at Ajaccio and vice-consulates at Bastia and Calvi.—MARSEILLES, *March 13, 1888.*

FRANK H. MASON,
Consul.

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PROJECTED RAILWAYS IN THE PHILIPPINE ISLANDS.

I have the honor to report that there are no railways in operation at present in any of the Philippine or Caroline Islands, but that two projects to construct railways on this island (Luzon, of the Philippine Archipelago) have been authorized by royal decree of the Spanish Government. The first is under a grant from the Government to an English firm in Liverpool, represented in Manila by the mercantile firm of Smith, Bell & Co. It is proposed to build a line from Manila to Antipolo, a distance of 18 miles, where a religious festival is held once a year, which is attended by a great number of pilgrims. A large revenue from the passenger traffic is expected during this festival. Antipolo is a central point in the hemp and sugar districts, and, being in the interior, all produce must be hauled to the sea-shore or to Manila in buffalo carts, very little reaching this city by the latter means as the roads are at times impassable and always in bad condition. It is expected that this road will open up to trade a section of country which has heretofore yielded very little to the markets of the Occident. It will also penetrate the mountainous district, in which the scenery is grand and beautiful beyond description, and, being much higher and dryer than the land on which Manila is situated, will furnish most charming building sites for the foreign residents of this city. It is expected that large numbers of country villas will be built along the line of the road and that a very profitable passenger business will be the result. No work has been done on the road-bed yet, and the representatives here are awaiting orders from the projectors in England. It is considered possible that work will be commenced within a few months.

The second project is more important. It is that of a corporation called "The Manila Railway Company, limited," authorized under royal decree of the Spanish Government, dated April 9, 1885, July 14, 1886, and January 21, 1887. The board of directors is composed of George Noble Taylor, chairman of the Madras Railway Company, chairman; Alexander Hubbard, director of the Great Western Railway Company; Hanbury Barclay; Edward Ford Duncanson, member of the London committee of the Hong-Kong and Shanghai Banking Corporation; G. R. Young, of the firms of Smith, Wood & Co., Liverpool and London, and Smith, Bell & Co., Manila; and Charles J. C. Scott, director of the Union Bank of Spain and England. The offices of the company are at No. 60 Old Board street, E. C., London, England. The chief engineer is George Higgin; the auditors, Messrs. Deloitte, Dever, Griffiths & Co., No. 4 Lathbury, E. C., London; and the secretary, H. B. Briggs.

The company is formed for the purpose of constructing and working a railway starting from a point in the district of Tondo, Manila, and terminating at Dagupan, on the bay of Lingayen, its length being about 120 miles. The Spanish Government guaranties 8 per cent. on a capital of $4,964,400 for a period of ninety-nine years, payable out of the treasury of the Philippine Islands, and at the expiration of the period named the rail-

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way and rolling stock are to revert to the Government without compensation. The line already surveyed runs through a very fertile and populous country, and it is confidently expected that it will do an exceedingly large freight business. Should the expectations of the projectors be realized advantages will undoubtedly accrue to the trade of the United States, as the greater part of the produce goes to our country. Last year more than half the sugar and hemp shipped went to the United States. In 1886 198,185 tons of sugar were shipped, 70,000 tons being sent to the United States. The indications are that the shipments this year will largely exceed that figure, my invoice-book for the first quarter showing goods to the value of $1,235,358.54 already shipped to American ports. The business, too, is almost entirely in the hands of English firms, there being only one American firm here, and that scarcely two years old. Manila has a population of about 300,000; this island (Luzon) is believed to have over 4,000,000, and the entire Philippine group over 7,000,000. The interior has never been developed, and the commercial possibilites are considered vast and unlimited, the natural wealth of the islands in hemp, coffee, sugar, and tobacco having been fully shown. The construction of the projected railway to Dagupan will, of course, largely increase commerce at Manila, and if our country maintains its relative position in the trade with the Philippines it must be materially benefited.

When the road will be commenced is a matter of conjecture, as nothing has been done except so much as has been necessary in order to comply fully with the terms of the concessions, which require that the work be commenced by the 21st of July, 1887, and completed July 21, 1891. Foundation stones have been laid at the termini, and December last the first spikes were driven with elaborate and imposing ceremonies. No more work was done, but engineers were sent out by the contractors. Hett, Maylor & Co., of London, have been here looking over the line, and it is said that a large force of native laborers has been engaged for the work of grading. The country through which the line is expected to run is inhabited almost entirely by the natives — Malays — who live upon rice, fruit, and fish almost exclusively, and wear little or no clothing. Their needs are very promptly supplied by the enterprising Chinese, who establish little stores wherever they can find a convenient place. I believe that there are rare fields here for American enterprise and capital, which would be much improved by the building of this road. — MANILA, PHILIPPINE ISLANDS., *April 4, 1888.*

ALEX. R. WEBB,
Consul.

GUATEMALA CENTRAL RAILROAD.

I propose to confine the subject of this dispatch to a history of the Guatemala Central Railroad, an enterprise which, after much serious tribulation, has become the greatest and most important American interest throughout Central America as yet successfully established. On the 16th of August, 1871, Mr. William F. Kelly, a British subject, obtained the first contract from the Guatemala Government to build a railway between the port of San

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José, on the Pacific coast, and the capital city of Guatemala. Although three distinct contracts were made by the Government with Mr. Kelly, extending between the years 1871 and 1876, all these contracts failed from lack of pecuniary ability on the part of the contractor, and were declared forfeited by mutual consent. During the year 1876 Mr. William Nanne, an American citizen, at that time general manager of the Costa Rica Railway, was summoned by the Guatemalan Government to build the railroad between the port of San José and Escuintla, a town midway to the capital. Before entering into any contract a regular survey was made on Mr. Nanne's account by the American engineers, Messrs. N. M. Corson and William P. Collins, during the latter part of the year 1876 and the beginning of 1877. On the strength of this survey Mr. William Nanne obtained a concession from the Guatemalan Government on the 7th of April, 1877, and the road was built and opened to traffic on the 19th of June, 1880, three months before the contract period terminated. On the 13th of July, of the same year, a contract was entered into between the Government and Mr. Nanne for an extension of the line from Escuintla to the capital city Guatemala. This contract was duly carried out, and amid the roar of cannon, the shouts of the assembled multitude, and the city freshly whitewashed and gaily decorated, the road was declared open for traffic on the 1st of September, 1884.

Mr. Nanne's first concession, which included the railway under construction from San José to Escuintla, was incorporated by him under the laws of the State of California in 1878, by the name of the Guatemala Central Railroad Company. The second concession of July 13, 1880, which was the extension of the line to this capital, was incorporated through New York capitalists under the laws of the State of New York in May, 1882, by the name of the Central American Pacific Railway and Transportation Company, which organization constructed the latter line. Three years subsequently, namely, in October, 1885, these corporations of the States of California and New York were consolidated under a charter granted by the former State, retaining the name of the original company, that of the Guatemala Central Railroad Company, a special act of the legislature of the State of New York having been obtained for that purpose. Political changes and disturbances in Guatemala have created some perplexing questions between the railway and the Government which call for harmonious arrangement and settlement, and which, doubtless, will be properly determined by such judicious and friendly intervention as would naturally suggest itself to our own Government with the view of the protection of so grand and valuable an American enterprise, which must commend itself to both Governments. It is a work of great public utility for the Republic of Guatemala, and one which reflects credit upon the ability of Mr. Nanne and the enterprise of our fellow-citizens who lent capital to its undertaking. The road is thoroughly built and equipped, well ballasted with gravel and broken rock, and runs as smoothly as the best of our own railroads, or those of any other country in the world. The scenery along the line is grand and picturesque; especially on the ascending grade between Escuintla and this city the varied views which com-

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prehend the perfection of landscape scenery meet the eye in a succession of panoramic changes that are indescribably delightful. The towering volcanoes of Aqua and Fuego loom forth, their clear-cut outlines piercing the cloudless sky, with an undulating wave of foot-hills rolling up to their base, while at one point on the road the train skirts Lake Amatitlan, some 5 miles in length and about 2 in width, from whose surface here and there hot springs are continually bubbling and breathing forth steam, a reminder that it is the bowl of an old volcanic crater with hidden fires now slumbering beneath its placid bosom.

The Guatemala Central Railroad runs from the port of San José, on the Pacific coast, latitude 13° 55′ 19″ north, longitude 90° 49′ 76″ west, in a general north by east direction, to the capital city of Guatemala. The length of the main line is 71.8 miles. That of the Guarda Viejo branch is 1 mile, with a gauge of 3 feet. The sidings on the road are 2.5 miles, with a distance of 1 yard between the rails, making a total track of 75.5 miles. The highest point on the line is 5,010 feet above the level of the sea. The cross-ties, from 2,600 to 3,000 per mile, are about one-half of California red wood and one-half native hard wood. The total cost of the road is $2,500,000; gross earnings during 1887, $423,873.63; expenses, in silver pesos, $212,267.84; net earnings 1887, $211,605.79.

The line by its charter is subsidized by the Guatemala Government to the extent of $100,000 per annum for twenty-five years.

The traffic in 1887, in round figures, was as follows: 10,000 tons of imports, at an average rate of $21 per ton, $210,000; 12,000 tons of exports, at an average rate of $8 per ton, $96,000; 8,000 tons local, at an average rate of $6 per ton, $48,000; 100,000 passengers, $70,000; total, $424,000.

The following comprises the rolling stock of the line: 4 43-ton Cooke locomotives, Paterson, N. J.; 4 22-ton Baldwin locomotives, Philadelphia; 1 25-ton Prescott Scott engine, San Francisco; 5 first-class coaches; 6 second-class coaches; 4 combination baggage cars; 21 box cars, 8 tons, 24 feet long; 30 box cars, 10 tons, 28 feet long; 28 flat cars, 24 and 28 feet long, and 6 stock cars. — GUATEMALA, *March 6, 1888.*

JAMES R. HOSMER,
Consul-General.

LABOR AND PRODUCTS IN SANTIAGO.

In the silver and copper mines in the vicinity of Santiago, which I have visited, the miner receives from $1 to $1.25 a day, but generally earns more on piece-work; besides this he receives daily a ration of beans or a pound of good bread, and all he can eat at mid-day of a stew composed of cracked wheat, sun-dried beef, called "chargue," onions, potatoes, and beans, and a pound of fresh beef or mutton three times a week, and his lodging. Coal miners earn from $1 to $1.50 a day, and "putters" (those that bring the coal from the mines to the surface) from 80 cents to $1, house free, and get one-third of a ton of coal each month, for which 50 cents is deducted from their

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pay. In Santiago a laborer receives 80 cents to $1 a day, and a bricklayer and carpenter $2. Rents for working people are very low, as the buildings in which they live are of adobe, cheap, and poor. Near Santiago a laborer on a hacienda receives 40 cents a day when employed, a ration or pound of bread and beans, house rent free, and the use of an acre of ground; but far from the cities is paid 10 cents less a day, but receives grass for two cows or two horses as he may prefer. When the "patron" has work they must give him the preference. Farm labor is becoming scarce in Chili and the pay is sure to advance. The working people are hardy, nervous, and energetic; patient, tractable, and respectful, but not servile, and become attached to their haciendas and patrons. As a rule they do not live long, and a large percentage of their children die young.

As to land it is generally held in large tracts, except in the foreign settlements of the south. A thousand acres is considered a small farm, and 3,000 or 4,000 is an average, while many haciendas contain 10,000 or 12,000. The church haciendas are, or were, very large, but fear for the future security of possession has caused many of these to be divided up and sold. All the principal families of Chili own, through inheritance or purchase, large haciendas on which they reside about three months in the year and from which they receive large incomes. Farming in Chili is the most certain and profitable business where irrigation is obtainable. The melting snows bring down from the Cordilleras a rich sediment which manures the ground, constantly adding to its soil, and irrigates the growing crops. The grasses are natural, varied, and nutritious, also a white and yellow clover. Alfalfa sown on coarse gravelly lands, or in beds of dried-up water courses, are inexhaustible and gives three heavy green crops a year. Wild oats grow everywhere in Chili, and after a wet or snowy winter on the Cordilleras the sides of these mountains are covered with luxuriant crops, growing 8 or 10 feet high. I have a bundle of it in my house 8 feet high, the grain of which is very small, brought from a place 4,000 feet above the level of the sea.

Wheat and barley are the two staple crops. Barley sells here from $3 to $4 the "fanega" of 155 pounds; wheat from $3.75 to $4 a "fanega" of 160 pounds.

Oxen are universally used for draught, and bring, in fair condition, from $50 to $90 each. When fattened for the butcher they sell according to weight and condition. Large numbers of oxen are brought from the Argentine, when the snows melt in the summer, and fattened here. Butchers' meat is not retailed by the pound, as with us, nor is it cut up in the same way. It is sold by the piece. All the meat consumed in Santiago is slaughtered for so much a head at the "matadero" or municipal slaughter-house, the receipts for which for the month of December amounted to nearly $13,000. The number and kind of animals slaughtered were as follows: Horned cattle, 5,700; calves, 100; sheep, 8,500; lambs, 2,500, and hogs, 550—a large consumption of meat food for a population of less than 200,000.—SANTIAGO, *March 22, 1888.*

WILLIAM R. ROBERTS.

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PRODUCTIONS OF CHIHUAHUA. — Vice-Consul William Heimke sends the following under date of February 10, 1888:

The principal production within my consular district is silver, with some gold, of which there was coined at the mint in this city during the fiscal year 1886–'87 —

Denomination.	Number.	Amount.
Silver pieces of $1	2,621,873	$2,621,873 00
Silver pieces of 50 cents	26,272	13,136 00
Silver pieces of 25 cents	26,300	6,575 00
Silver pieces of 10 cents	40,360	4,036 00
Silver pieces of 5 cents	31,240	1,562 00
Gold pieces of $20	299	5,980 00
Total		$2,653,162 00
Coinage of the fiscal year 1885–'86		2,519,712 50
Increase over preceding year		$133,449 50

Of other enterprises of production in this consular district may be mentioned the recent construction in this city of a 60-ton smelter and refinery, an iron foundry (said to be the only one in the Republic of Mexico), and woolen mills. Besides these, there are several other smelters, a soap and candle factory, ice factory, seven flouring mills, the machine shops of the Mexican Central Railway Company, and the principal offices of the Chihuahua and Durango Telephone Company. All these are American enterprises, conducted with American capital, and employing about five thousand Americans.

IMPORTS INTO MEXICO.

The amount and value of the importations into Mexico have been the subject of much inquiry of late years. In 1880 the Mexican Government published very full data for the fiscal years 1873 to 1875, and I made report thereof; but as they were for so remote dates they were not deemed of sufficient interest for full publication. No other Mexican statistics as to imports have since been published until those received by me on the 8th instant, from which this report is taken. In the mean time various nations have published statistics of the imports of Mexico, based upon the declared exports from their own ports and from such other data more or less reliable as they could obtain.

Mr. J. Nimmo, jr., then chief of the United States Bureau of Statistics, in a report made in 1884, states the exports from the United States to Mexico in 1883 at $16,587,620. This is several millions too high, but was perhaps as nearly accurate as could be made from the data then at hand.

For the year ending June 30, 1885, the first half of which I treat in this report, Colonel Switzler, chief of the same Bureau, on page 71 of his annual report, gives the total exports from the United States to Mexico at $8,420,190. For the first half of the same year, by Mexican statistics, I show imports from the United States to have been $5,045,531, or at the rate of over $10,000,000 for the full year. It is probable that the other half of the year was equal to or greater than the first half, so that there would be a difference of over a million and a half. The United States statistics are correct in all except domestic exports by the railways along the border. There is no law to compel shippers of domestic goods by rail to take out export permits, and

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many refuse or neglect to do so. This is the cause of the difference of over a million and a half between the two tables. Table A shows the imports by countries and classes of articles in United States gold values, and also states under each country the plaza value in Mexican coin and the duties collected thereon in the same money. In the résumé the total imports for the half year are shown as $11,893,347, or at the rate of $23,786,694 for the whole year. The plaza value of these in Mexican coin was $22,503,791 for the half year, or at the rate of $45,007,582 for the whole year. The duties collected for the six months were $7,042,446, or, reduced to United States gold at 80 cents, $5,633,956, an average of a little more than 47 per cent. The United States is first in exports to Mexico; Great Britain, second; France, third; Germany, fourth, and Spain fifth. The United States sent 42 per cent.; Great Britain, 29 per cent.; France, 12 per cent.; and Germany 10 per cent.

Table B states the classes of articles by countries for the same period, giving also plaza value and duties collected. The résumé shows cotton, and manufactures of, to be $3,076,781; the free goods, $2,821,571; groceries and provisions, $1,880,540; miscellaneous, $884,769; hardware, etc., $870,979; and wool, and manufactures of, $688,183. It also shows the plaza value of each class of articles and the duties paid thereon reduced to United States coin at 80 cents on the dollar of Mexico.

Table C shows the imports at custom-houses by classes of articles. The résumé shows the totals for each custom-house, with also the plaza value and duties paid reduced to United States gold. The imports at Vera Cruz were $5,790,162, or 48 per cent.

Table D shows the imports by countries and classes of articles from different countries for the fiscal year 1875 and the first half of the year 1885. This enables a comparative view of the imports at two dates ten years apart. The summary shows that the United States has doubled its commerce, Germany more than doubled, while Great Britain has lost about $1,000,000.

Table E shows the importations by ports on the Gulf, on the Pacific, and on the frontiers for the same two dates, and gives a view of the relative changes in commercial routes in that time. A study of this table is of special interest as showing the first effects of the American railways into Mexico. The Central was finished from Paso del Norte to the capital in the early part of 1884, and the table shows the imports into Mexico before this road had greatly changed the traffic. Tampico and Vera Cruz lost while Tuxpan and Progreso gained, and the Gulf coast imports were a few hundred thousand dollars less in the latter than in the first date. On the Pacific coast Mazatlan, as stated separately in the latter date, gave an increase of $1,250,000; San Blas, $338,000, and various other ports so increased the total that in the latter date they would be at the rate of nearly $5,000,000 a year as compared with a little over $1,000,000 in 1875. On the United States frontier Matamoros fell off at the rate of about $1,000,000, which went to Laredo and Piedras Negras. Presidio del Norte fell from $250,000 to almost nothing, while Paso del Norte gained from less than $50,000 to nearly $1,500,000.

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Nogales also rose from nothing to over $300,000. In subsequent years the traffic along this frontier has steadily increased until now it is more than one-third of the total imports. As the Sunset route is now through to the Central at Torreon near Lerdo, and the National will soon be finished through to the capital, the traffic along this frontier will be considerably increased next year. Besides there are several feeders to these main lines which will swell their traffic. Within a few years one-half the imports of Mexico are likely to be imported via these American railways. This will be one-half the carrying of what will soon be $30,000,000 of imports, and the carrying of almost, if not fully as much, outward bound freight in exports of the country. Besides the roads now built and building there is room for one more, a trunk line from some point near Houston, Tex., along near the coast to Brownsville, Matamoros, Jimenez, Victoria, and thence via the rich coast lands of Tamaulipas and Vera Cruz to the capital. — MATAMOROS, MEXICO, *May 17, 1888.*

WARNER P. SUTTON,
Consul-General.

TABLE A. — *Imports into Mexico during the first half of the fiscal year ending June 30, 1885, (July 1 to December 31, 1884), by countries and classes of articles.*

Germany.	Invoice value in U.S. gold.
Free goods	$79,908
Free by executive order	741
Cotton	237,726
Linen and hemp	22,843
Woolen	164,065
Silk	31,932
Mixed goods	86,275
Groceries and provisions	197,684
Crystal, glass, and earthen ware	59,334
Shelf and heavy hardware, etc	185,706
Drugs, medicines, etc	33,270
Miscellaneous	94,926
Unquoted (paying 55 per cent. on wholesale plaza value)	29,118
Total	1,223,528
Plaza value in Mexican coin	$2,538,085
Duties paid	947,497

Belgium.	
Free goods	$4,209
Linen and hemp	530
Mixed goods	85
Groceries and provisions	30,121
Crystal, glass, and earthen ware	12,988
Shelf and heavy hardware, etc	2,124
Drugs, medicines, etc	10
Miscellaneous	16,291
Unquoted	5,447
Total	71,805
Plaza value	$145,035
Duties paid	51,690

United States.	Invoice value in U.S. gold.
Free	$2,032,008
Free by executive order	52,127
Cotton	885,548
Linen and hemp	46,168
Wool	100,849
Silk	25,013
Mixed goods	71,197
Groceries and provisions	729,059
Crystal, glass, and earthen ware	60,245
Shelf and heavy hardware, etc	368,512
Drugs, medicines, etc	129,148
Miscellaneous	487,440
Unquoted	58,217
Total	5,045,531
Plaza value	$8,817,670
Duties paid	2,258,480

France.	
Free	$88,966
Cotton	149,123
Linen and hemp	17,822
Wool	247,119
Silk	79,844
Mixed goods	98,435
Groceries and provisions	374,171
Crystal, glass, and earthen ware	37,565
Shelf and heavy hardware, etc	102,667
Drugs, medicines etc	31,182
Miscellaneous	185,268
Unquoted	37,344
Total	1,449,506
Plaza value	$2,862,623
Duties paid	978,267

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TABLE A. — *Imports into Mexico, etc.* — Continued.

Ecuador.	Invoice value in U.S. gold.
Groceries and provisions	$2,192
Miscellaneous	1,570
Total	3,762

Guatemala.	Invoice value in U.S. gold.
Free	$2,022
Cotton	2,310
Wool	2
Mixed goods	1
Groceries and provisions	2,074
Crystal, glass, and earthen ware	138
Shelf and heavy hardware, etc	32
Drugs, medicines, etc	2
Miscellaneous	10
Total	6,591
Plaza value	$11,055
Duties paid	2,489

Holland.	Invoice value in U.S. gold.
Groceries and provisions	$5,501
Shelf and heavy hardware, etc	1,264
Miscellaneous	1,720
Total	8,485
Plaza value	$17,129
Duties paid	6,099

Great Britain.	Invoice value in U.S. gold.
Free	$371,331
Free by executive order	3,600
Cotton	1,799,352
Linen and hemp	185,759
Wool	176,147
Silk	21,217
Mixed goods	384,496
Groceries and provisions	169,525
Crystal, glass, and earthen ware	28,798
Shelf and heavy hardware, etc	196,978
Drugs and medicines	45,167
Miscellaneous	52,406
Unquoted	16,792
Total	3,451,568
Plaza value	$6,954,793
Duties paid	2,467,756

Spain.	Invoice value in U.S. gold.
Free	$182,419
Cotton	471
Linen and hemp	918
Wool	1
Groceries and provisions	309,043
Crystal, glass, and earthen ware	10
Shelf and heavy hardware, etc	9,763
Drugs, medicines etc	436
Miscellaneous	44,753
Unquoted	1,123
Total	548,937
Plaza value	$989,947
Duties paid	276,328

Italy.	Invoice value in U.S. gold.
Free	$1,120
Groceries and provisions	21,259
Shelf and heavy hardware	337
Drugs and medicines	606
Miscellaneous	2
Total	23,324
Plaza value	$41,716
Duties paid	11,396

China.	Invoice value in U.S. gold.
Linen and hemp	$56
Silk	20,769
Groceries and provisions	13,933
Shelf and heavy hardware, etc	1,246
Miscellaneous	16
Unquoted	39
Total	26,059
Plaza value	$53,223
Duties paid	7,466

Austria.	Invoice value in U.S. gold.
Groceries and provisions	$841
Miscellaneous	367
Unquoted	3
Total	1,211
Plaza value	$2,300
Duties paid	726

Hindostan.	Invoice value in U.S. gold.
Groceries and provisions	$382

Denmark.	Invoice value in U.S. gold.
Groceries and provisions	$325

Ceylon.	Invoice value in U.S. gold.
Groceries and provisions	$2,460

Costa Rica.	Invoice value in U.S. gold.
Groceries and provisions	$10,477

India.	Invoice value in U.S. gold.
Groceries and provisions	$409

Sweden.	Invoice value in U.S. gold.
Free by executive order	$3,130
Shelf and heavy hardware, etc	2,350
Total	5,480

Norway.	Invoice value in U.S. gold.
Groceries and provisions	$2,980

Switzerland.	Invoice value in U.S. gold.
Cotton	$2,951
Mixed goods	135
Groceries and provisions	993
Total	3,379

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TABLE A.—*Imports into Mexico, etc.*—Continued.

Japan.	Invoice value in U.S. gold.
Groceries and provisions	$276
Drugs and medicines	37
Total	313

Turkey.	
Groceries and provisions	$1,084

Venezuela.	Invoice value in U.S. gold.
Groceries and provisions	$172

Peru.	
Groceries and provisions	$5,573

Persia.	
Groceries and provisions	$6

Résumé of Table A.

Countries.	Invoice value in U.S. gold.
Germany	$1,223,528
Austria	1,211
Belgium	71,805
Ceylon	2,460
Costa Rica	10,477
China	26,059
Denmark	325
Ecuador	3,762
Spain	548,937
United States	5,045,531
France	1,449,506
Guatemala	6,591
Holland	8,485
India	409
Hindostan	$382
Great Britain	3,451,568
Italy	23,324
Japan	313
Norway	2,980
Peru	5,573
Persia	6
Sweden	5,480
Switzerland	3,379
Turkey	1,084
Venezuela	172
Total	11,893,347

TABLE B.—*Imports into Mexico during the first half of fiscal year ending June 30, 1885 (July 1 to December 31, 1884), by classes of articles and countries.*

Free of duty.	Invoice value in U.S. gold.
Germany	$79,908
Belgium	4,209
Spain	182,419
United States	2,032,008
France	88,966
Guatemala	2,022
Great Britain	371,331
Italy	1,110
Total	2,761,973
Plaza value	$3,590,565

Free by executive order.	
Germany	$741
United States	52,127
Great Britain	3,600
Sweden	3,130
Total	59,598
Plaza value	$77,477

Cotton.	
Germany	$237,726
Spain	471
United States	885,548
France	149,123
Guatemala	2,310
Great Britain	1,799,352
Switzerland	2,251
Total	3,076,781

Groceries and provisions.	Invoice value in U.S. gold.
Germany	$197,684
Austria	841
Denmark	325
India	409
Hindostan	382
Belgium	30,121
Ceylon	2,460
Costa Rica	10,477
China	13,933
Ecuador	2,192
Spain	309,043
United States	729,059
France	374,171
Guatemala	2,074
Holland	5,501
Great Britain	169,525
Italy	21,259
Japan	276
Persia	6
Switzerland	993
Venezuela	172
Norway	2,980
Peru	5,573
Turkey	1,084
Total	1,880,540
Plaza value	$3,760,795
Duties paid	1,316,093

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TABLE B. — *Imports into Mexico, etc.* — Continued.

Silk.	Invoice value in U.S. gold.
Germany	$31,932
China	10,769
United States	25,013
France	79,844
Great Britain	21,217
Total	168,775
Plaza value	$360,397
Duties paid	140,989

Mixed goods.	
Germany	$86,275
Belgium	85
United States	71,197
Guatemala	1
France	98,435
Great Britain	384,496
Switzerland	135
Total	640,624
Plaza value	$1,367,892
Duties paid	535,081

Linen and hemp.	
Germany	$22,843
Belgium	530
China	56
Spain	918
United States	46,168
France	17,822
Great Britain	185,759
Total	274,096
Plaza value	$591,224
Duties paid	234,899

Wool.	
Germany	$164,065
Spain	1
United States	100,849
France	247,119
Guatemala	2
Great Britain	176,147
Total	688,183
Plaza value	$1,427,883
Duties paid	533,246

Crystal, glass, and earthen ware.	
Germany	$59,334
Belgium	12,988
Spain	10
Guatemala	138
United States	60,245
France	37,565
Great Britain	28,798
Total	199,078
Plaza value	$411,387
Duties paid	152,586

Shelf and heavy hardware.	Invoice value in U.S. gold.
Germany	$185,706
Belgium	2,124
China	1,246
Spain	9,763
United States	368,512
France	102,667
Holland	1,264
Great Britain	196,978
Sweden	2,350
Italy	337
Guatemala	32
Total	870,979
Plaza value	$1,771,391
Duties paid	639,119

Drugs, medicines, etc.	
Germany	$33,270
United States	129,148
France	31,182
Great Britain	45,167
Belgium	10
Spain	436
Guatemala	2
Italy	616
Japan	37
Total	239,868
Plaza value	$486,182
Duties paid	174,355

Miscellaneous.	
Germany	$94,926
Belgium	16,291
Ecuador	1,570
Spain	44,753
United States	487,440
France	185,268
Holland	1,720
Great Britain	52,406
Austria	367
China	16
Guatemala	10
Italy	2
Total	884,769
Plaza value	$1,751,916
Duties paid	601,717

Unquoted.	
Paying 55 per cent. on wholesale plaza value.	
Germany	$29,118
Belgium	5,447
Spain	1,122
United States	58,219
France	37,344
Great Britain	16,792
Austria	3
China	39
Total	148,083
Plaza value	$289,659
Duties paid	97,151

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TABLE B.—*Imports into Mexico, etc.*—Continued.

Résumé of Table B.

Classes of articles.	Invoice value in U.S. gold.	Plaza value reduced to U.S. gold at 80 cents on the dollar of Mexico.	Duties paid reduced to U.S. gold at 80 cents on the dollar of Mexico.
Free of duties	$2,761,973	$2,872,452	.....
Free by executive order	59,598	61,981	.....
Cotton	3,076,781	5,293,619	$2,093,768
Linen and hemp	274,096	472,979	187,919
Wool	688,183	1,142,306	426,597
Silk	168,775	288,317	112,791
Mixed goods	640,624	1,094,314	428,065
Groceries, etc	1,880,540	3,008,636	1,052,874
Crystal, etc	199,078	329,110	122,069
Hardware, etc	870,979	1,417,113	511,295
Drugs, etc	239,868	388,946	139,484
Miscellaneous	884,769	1,401,533	481,373
Unquoted	148,083	231,727	77,721
Total	11,893,347	18,003,033	5,633,956

TABLE C.—*Imports into Mexico by custom-houses and classes of articles first half fiscal year ending June 30, 1885 (July 1 to December 31, 1884).*

Acapulco.	Invoice value in U.S. gold.
Free of duties	$18,161
Cotton	54,987
Linen and hemp	1,744
Wool	1,222
Mixed goods	1,868
Groceries and provisions	7,243
Shelf and heavy hardware, etc	5,231
Drugs, medicines, etc	2,500
Miscellaneous	1,509
Unquoted	1,030
Other	933
Total	96,328

Altata.	
Free	$5,076
Groceries, etc	8,990
Hardware, etc	3,442
Drugs, etc	2,122
Other	2,401
Total	22,031

Ascension.	
Free goods	$2,676
Groceries	1,853
Other	1,048
Total	5,571

Bahía de la Magdalena.	
All	$3,831

Cape San Lucas.	Invoice value in U.S. gold.
Free	$1,555
Groceries, etc	1,843
Other	1,618
Total	5,016

Camargo.	
Free	$5,300
Cotton	1,596
Groceries, etc	6,006
Hardware, etc	1,256
Miscellaneous	4,270
Other	1,339
Total	19,767

Campeche.	
Free	$54,432
Cotton	4,797
Groceries, etc	28,641
Crystal, etc	2,556
Hardware, etc	1,066
Drugs, etc	1,562
Miscellaneous	5,484
Other	1,313
Total	99,851

Coatzacoalcos.	
All	$75

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TABLE C.— *Imports into Mexico, etc.*— Continued.

Frontera.	Invoice value in U.S. gold.
Free	$46,239
Cotton	81,886
Linen and hemp	11,597
Wool	2,589
Mixed goods	5,965
Groceries, etc.	42,018
Hardware, etc	15,084
Drugs, etc.	5,620
Miscellaneous	8,557
Unquoted	1,006
Other	1,958
Total	222,519

Guaymas.	
Free	$30,809
Cotton	40,222
Linen and hemp	2,557
Wool	3,526
Mixed goods	6,104
Groceries, etc.	43,442
Crystal, etc.	2,869
Hardware, etc.	7,631
Drugs, etc.	2,492
Miscellaneous	8,894
Unquoted	2,749
Other	679
Total	151,974

Guerrero.	
Free	$14,824
Cotton	5,413
Groceries, etc.	9,866
Miscellaneous	3,486
Other	3,411
Total	37,000

Isla del Carmen.	
Free	$16,196
Cotton	2,811
Other	1,380
Total	20,387

Manzanillo.	
Free	$11,273
Cotton	93,327
Linen and hemp	7,376
Wool	2,827
Silk	2,339
Mixed goods	7,657
Groceries, etc.	30,630
Crystal, etc.	14,975
Hardware, etc.	20,963
Drugs, etc.	9,514
Miscellaneous	7,121
Unquoted	502
Total	208,504

La Paz.	Invoice value in U.S. gold.
Free	$11,163
Cotton	19,130
Groceries, etc.	7,725
Hardware, etc.	2,858
Miscellaneous	1,607
Other	2,623
Total	45,106

Matamoros.	
Free	$35,334
Cotton	187,673
Linen and hemp	14,799
Wool	48,509
Silk	13,570
Mixed goods	28,288
Groceries, etc.	209,758
Crystal, etc.	4,265
Hardware, etc.	39,642
Drugs, etc.	10,471
Miscellaneous	78,188
Unquoted	3,275
Total	673,772

Mazatlan.	
Free	$237,341
Cotton	328,049
Linen and hemp	48,234
Wool	64,430
Silk	16,450
Mixed goods	43,427
Groceries, etc.	281,147
Crystal, etc.	22,911
Hardware, etc.	106,042
Drugs, etc.	27,404
Miscellaneous	61,077
Other	54,730
Total	1,292,242

Mier.	
Free	$12,139
Cotton	2,037
Groceries, etc.	4,100
Other	1,490
Total	19,766

Nuevo Laredo.	
Free	$293,661
Cotton	90,906
Linen and hemp	9,603
Wool	26,684
Silk	5,585
Mixed goods	24,354
Groceries, etc.	79,100
Crystal, etc.	16,652
Hardware, etc.	40,753
Drugs, etc.	9,746
Miscellaneous	53,794
Unquoted	5,539
Total	656,376

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TABLE C.— *Imports into Mexico, etc.*— Continued.

Nogales.	Invoice value in U.S. gold.
Free	$40,859
Cotton	60,574
Wool	2,595
Mixed goods	2,790
Groceries, etc	30,460
Hardware, etc	13,369
Drugs, etc	1,790
Miscellaneous	7,053
Other	2,708
Total	162,198

Palanimas.	
Free	$7,975
Cotton	1,288
Groceries, etc	5,345
Hardware, etc	2,219
Miscellaneous	2,438
Other	965
Total	20,230

Paso del Norte.	
Free	$393,291
Free by executive order	49,699
Cotton	66,510
Linen and hemp	1,982
Wool	3,126
Silk	897
Mixed goods	2,345
Groceries, etc	80,107
Crystal, etc	13,374
Hardware, etc	52,697
Drugs, etc	18,079
Miscellaneous	37,622
Unquoted	14,691
Total	734,420

Piedras Negras.	
Free	$108,340
Cotton	24,270
Linen and hemp	3,176
Wool	10,680
Mixed goods	3,484
Groceries, etc	28,952
Crystal, etc	2,827
Hardware, etc	12,591
Drugs, etc	3,301
Miscellaneous	24,811
Unquoted	5,847
Total	228,278

Presidio del Norte.	
Hardware, etc	1,203
Other	2,643
Total	3,846

Progreso.	Invoice value in U.S. gold.
Free	$471,632
Free by executive order	8,118
Cotton	53,297
Linen and hemp	1,914
Wool	1,854
Mixed goods	5,262
Groceries, etc	66,960
Crystal, etc	3,497
Hardware, etc	17,009
Drugs, etc	9,902
Miscellaneous	17,856
Unquoted	7,217
Total	664,518

Puerto Angel.	
Groceries, etc	$6,709
Other	1,385
Total	8,094

Quitovaquito.	
All	$378

Salina Cruz.	
Free	$2,352
Cotton	10,809
Groceries, etc	8,898
Hardware, etc	2,205
Other	3,259
Total	27,523

San Blas.	
Free	$68,020
Cotton	116,430
Linen and hemp	10,477
Wool	11,004
Mixed goods	13,125
Groceries, etc	60,183
Hardware, etc	29,970
Drugs, etc	9,797
Miscellaneous	12,982
Other	6,174
Total	338,162

Sasabe.	
Free	$3,853
Cotton	3,234
Groceries, etc	5,050
Other	6,050
Total	18,187

Soconusco.	
Free	$2,866
Cotton	2,502
Groceries, etc	4,921
Hardware, etc	1,680
Other	1,284
Total	13,253

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TABLE C. — *Imports into Mexico, etc.* — Continued.

Tampico.	Invoice value in U.S. gold.
Free	$29,825
Free by executive order	1,780
Cotton	44,182
Linen and hemp	3,404
Wool	6,397
Silk	1,084
Mixed goods	3,116
Groceries, etc	46,353
Crystal, etc	5,832
Hardware, etc	20,228
Drugs, etc	3,399
Miscellaneous	10,528
Unquoted	1,462
Total	177,590
Tijuana	
Free	1,567
Groceries, etc	1,438
Other	697
Total	3,702
Tonolá.	
Free	$13,284
Cotton	8,568
Wool	1,110
Groceries, etc	24,861
Crystal, etc	5,623
Hardware, etc	14,911
Drugs, etc	2,479
Miscellaneous	4,348
Other	780
Total	75,964

Todos Santos.	Invoice value in U.S. gold.
Groceries, etc	$1,847
Other	1,620
Total	3,467
Tuxpan.	
Free	$7,512
Cotton	1,200
Groceries, etc	18,780
Crystal, etc	5,993
Hardware, etc	5,438
Miscellaneous	1,721
Other	1,068
Total	41,711
Vera Cruz.	
Free	$812,134
Cotton	1,766,654
Linen and hemp	152,333
Wool	499,018
Silk	123,927
Mixed goods	490,305
Groceries, etc	725,857
Crystal, etc	92,292
Hardware, etc	449,308
Drugs, etc	115,560
Miscellaneous	521,925
Unquoted	41,449
Total	5,790,162
Zapaluta.	
Groceries, etc	$2,268
Other	286
Total	2,554

Résumé of Table C.

Custom-houses.	Invoice value in U. S. gold.	Plaza value reduced to U.S. gold at 80 cents on the dollar of Mexico.	Duties paid reduced to U.S. gold at 80 cents on the dollar of Mexico.
Acapulco	$96,328	$137,386	$37,205
Altata	22,031	31,051	8,139
Ascension	5,571	7,322	1,529
Bahia de la Magdalena	3,831	6,105	2,121
Cape San Lucas	5,016	7,054	1,838
Camargo	19,767	30,454	9,896
Campeche	99,851	131,477	27,631
Coatzacoalcos	75	112	34
Frontera	222,319	347,827	116,407
Guaymas	151,974	261,846	103,794
Guerrero	37,000	54,849	16,370
Isla del Cármen	20,387	26,185	4,983
La Paz	45,106	63,911	17,001
Manzanillo	208,504	311,316	94,472
Matamoros	673,772	995,190	294,468
Mazatlan	1,291,242	2,173,490	830,598
Mier	19,766	28,084	7,527
Nogales	162,192	228,403	59,723
Nuevo Laredo	656,376	965,553	282,922
Palominas	20,230	26,456	5,417
Paso del Norte	734,420	905,305	141,508

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Résumé of Table C.—Continued.

Custom-houses.	Invoice value in U.S. gold.	Plaza value reduced to U.S. gold at 80 cents on the dollar of Mexico.	Duties paid reduced to U.S. gold at 80 cents on the dollar of Mexico.
Piedras Negras	$228,278	$324,321	$86,912
Presidio del Norte	3,846	5,405	1,405
Progreso	664,518	788,611	97,513
Puerto Angel	8,094	11,605	3,187
Quitovaquito	378	531	137
Salina Cruz	27,523	46,937	18,313
San Blas	338,162	481,659	129,970
Sásabe	18,187	26,356	7,441
Soconusco	13,253	26,107	12,325
Tampico	177,590	297,309	112,616
Tijuana	3,702	4,702	852
Todos Santos	3,467	5,120	1,515
Tonalá	75,964	106,403	27,401
Túxpan	41,711	64,748	21,369
Vera Cruz	5,790,162	9,070,068	3,048,299
Zapaluto	2,554	3,775	1,119
Total	11,893,347	18,003,033	5,633,957

TABLE D.—*Imports into Mexico by countries and classes of articles.*

Classes of articles.	Year ending June 30, 1875.	First half of year ending June 30, 1885.
Germany.		
Free	$50,144	$79,908
Free by executive order		741
Cotton	199,750	237,726
Linen and hemp	27,599	22,843
Wool	40,379	164,065
Silk	3,240	31,932
Mixed goods	44,903	86,275
Groceries, etc.	288,346	197,684
Crystal, etc.	74,181	59,334
Hardware, etc	147,593	185,706
Drugs, etc	12,107	33,270
Miscellaneous	116,232	94,926
Unquoted	1,289	29,112
Total	1,005,763	1,223,522
Spain.		
Free	$12,295	$182,419
Cotton	2,374	471
Linen and hemp	2,430	918
Wool	9	1
Mixed goods	728	
Groceries, etc.	710,525	309,042
Crystal, etc.	316	10
Hardware, etc	3,832	9,762
Drugs, etc	1,512	436
Miscellaneous	179,500	44,753
Unquoted	1,387	1,123
Total	914,908	548,937

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TABLE D.—*Imports into Mexico by countries and classes of articles.*—Continued.

Classes of articles.	Year ending June 30, 1875.	First half of year ending June 30, 1885.
France.		
Free	$320,611	$88,566
Cotton	344,732	169,123
Linen and hemp	99,494	17,822
Wool	441,265	247,139
Silk	160,579	79,844
Mixed goods	215,953	98,435
Groceries, etc	733,893	374,171
Crystal, etc	61,970	37,565
Hardware, etc	298,314	202,667
Drugs, etc	36,370	31,182
Miscellaneous	364,866	185,268
Unquoted	18,943	37,344
Total	3,096,990	1 449,506
Great Britain.		
Free	$1,331,369	$371,331
Free by executive order	.....	3,600
Cotton	5,109,231	1,799,352
Linen and hemp	453,456	185,759
Wool	342,248	176,147
Silk	79,509	21,217
Mixed goods	456,040	384,496
Groceries, etc	347,068	169,595
Crystal, etc	46,486	28,798
Hardware, etc	310,346	196,978
Drugs, etc	20,916	45,167
Miscellaneous	150,061	52,406
Unquoted	10,433	16,792
Total	8,657,163	3,451,368
United States.		
Free	$1,023,063	$82,038,018
Free by executive order	.....	52,127
Cotton	1,674,184	885,548
Linen and hemp	117,229	46,168
Wool	163,743	100,849
Silk	31,158	25,083
Mixed goods	78,547	71,297
Groceries, etc	852,278	709,059
Crystal, etc	56,659	60,265
Hardware	394,895	368,522
Drugs, etc	108,915	119,148
Miscellaneous	507,285	487,440
Unquoted	26,379	58,127
Total	5,008,635	5,045,531
All other	$90,034	$174,277

Résumé of Table D.

Country.	Year ending June 30, 1875.	Half year ending June 30, 1885.
Germany	$1,005,763	$1,123,308
Spain	914,908	548,937
France	3,096,990	1,449,506
Great Britain	8,657,163	3,451,368
United States	5,008,635	5,045,531
All other	90,034	174,277
Total	18,793,493	11,893,347

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TABLE E.—*Imports into Mexico by custom-houses—values in United States gold.*

Classes of articles.	Year ending June 30, 1875.	First half of year ending June 30, 1885.
Gulf of Mexico.		
Tampico	$912,337	$177,590
Túxpan	54,706	41,711
Vera Cruz	12,344,834	5,790,162
Frontera	142,784	222,519
Isla del Cármen	51,130	.....
Campeche	169,456	99,851
Progreso	657,679	664,518
Other	5,103	5,646
Total	14,338,029	7,001,997
Pacific Ocean.		
Altata	.....	$22,031
Magdalena	$23,509	3,831
La Paz	152,680	45,106
Guaymas	282,909	151,974
Tonalá	.....	75,964
Manzanillo	356,426	208,504
Mazatlan	.....	1,291,242
Acapulco	291,792	96,328
Sásabe	.....	18,187
Salina Cruz	5,153	27,523
San Blas	.....	338,162
Soconusco	31,463	13,253
Isla del Cármen	.....	20,387
Palominas	.....	20,230
Other	.....	20,657
Total	1,143,932	2,353,379
Guatemala frontier.		
Zapaluta	$14,677	$2,554
United States frontier.		
Matamoros	$2,347,089	$673,772
Camargo	78,341	19,767
Mier	158,279	19,766
Guerrero	.....	37,000
Laredo	370,192	656,376
Piedras Negras	70,601	228,278
Presidio del Norte	225,156	3,846
Paso del Norte	47,197	734,420
Nogales	.....	162,192
Total	3,296,855	2,535,417
Gulf of Mexico	$14,338,029	$7,001,997
Pacific Ocean	1,143,932	2,353,379
Guatemala frontier	14,677	2,554
United States frontier	3,296,855	2,535,417
Total	18,793,493	11,893,347

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SUNDAY LABOR IN GERMANY.

An inquiry into the extent to which Sunday labor is practiced in Germany was recently set on foot by the Imperial Government prior to entering on the consideration of the propriety of regulating Sunday labor by imperial legislation. The laws of the various states of the German Empire are by no means uniform on this subject. In Saxony, for example, Sunday labor is prohibited in the manufacturing and farming industries, and in trade, with the exception of work necessary to prevent accidents or injury to health, repairs which can not be delayed, and works of "urgency." In Prussia the legislation is not so strict. For some time past a demand has been raised in various quarters for the limitation, or, at any rate, for the uniform regulation of Sunday work throughout the Empire, for it is obvious that a manufacturer or trader in a state which permits Sunday labor possesses a considerable advantage over his rival in a state where Sunday is a legal day of rest.

The results of the investigations leave a good deal to be desired in respect of fullness. In some cases divergent views as to the precise meaning of "Sunday" and "Sunday work;" in others indifference or ignorance have rendered the answers unavailable for statistical purposes. The most complete and accurate replies were received from the administrative districts (*Regierungs bezirke*) of the Prussian Kingdom; and as Prussia is by far the most important and extensive of the states of the Empire, the results of the investigation have a considerable value in showing the conditions which govern business in such a large area. In the 30 Prussian administrative districts from which the answers were most detailed, the inquiries extended to 500,156 establishments (*Betriebe*) of all kinds with 1,582,591 hands. Of these 288,939 establishments, or 57.75 per cent., and 668,027 (42.25 per cent.) hands work on Sunday; 211,217 establishments, or 42.25 per cent., and 919,564 hands, or 57.75 per cent., have no Sunday work. A closer examination shows that Sunday labor is much greater in trade and transport than in industrial (*gross industrie*) and manual labor, inasmuch as in the latter groups 47.2 per cent. of the establishments, and 35.9 per cent. of the work people have Sunday labor, while 52.8 per cent. of the establishments and 64.1 per cent. of the work people have none.

In sixteen of the districts it was possible to distinguish further between the proportions for large industrial undertakings (*gross industrie*) and for manual labor (*handwerk*). In large industrial undertakings Sunday work was carried on in 49.4 per cent. of the establishments and by 29.8 per cent. of the work people; in handicraft, in 47.1 per cent. of the establishments and by 41.8 per cent. of the work people. The explanation of these figures appears to be that while a larger proportion of the large industrial establishment do some Sunday work, in consequence of the keeping some part of their machinery or organization in perpetual operation, the division of labor in the large factories enables the requisite Sunday work to be done by a

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small proportion of hands, whereas in handicrafts, although a smaller proportion of establishments work on Sunday, the want of division of labor necessitates the presence of all, or nearly all, the work people, and this is particularly true of the smaller undertakings. The explanation is confirmed by the results of the investigations in eight districts where it was possible to ascertain what proportion of the workmen who do not work on Sunday are employed in establishments which have Sunday work. In the great industries it appears that establishments which work on Sunday only employ 47.1 per cent. of their hands on that day; handicrafts, on the other hand, employ 95.4 per cent.

For trade and transport, figures were obtained from twenty-nine districts, with the result that 77.6 per cent. of the establishments and 57.8 per cent. of the work people are employed on Sunday. A comparison with similar figures for industry and handicrafts gives the following general results: As compared with handicrafts, the great industries work a larger proportion of establishments but a smaller proportion of work people on Sunday; as compared with trade and transport, comparatively fewer of both establishments and work people. Trade and transport also employ a proportionately larger number of establishments and work people on Sunday than handicrafts.

With respect to these conclusions it should be observed that they only refer to the usual Sunday work which occurs more or less regularly. In the broader sense, of any kind of work that is ever done on Sunday it is probable that there are scarcely any houses where some work is not done from time to time. In trade the keeping open of the shop or sale department may be taken as the definition of regular Sunday work. In factories and great industries regular Sunday work applies chiefly to repairs and keeping the machinery and so on always going. Periodically recurring Sunday work is most frequent in such branches as land industry, where work must be done at certain periods of the year, and in branches where there is periodical recurrence of a pressure of business. The great industries, together with handicrafts, home industries, and, to some extent, trade are subject to this kind of Sunday work. Irregularly recurring Sunday work is infrequent in the great industries and in trade; but it is very common in handicrafts. Regular Sunday in the large industries employ a portion of the staff. In small establishments in places where Sunday work is the rule, and in branches like photography, where the best trade is done on Sunday, the work employs the whole staff. Periodically recurring Sunday work as a rule requires the services of the entire staff. As regards the practicability of a prohibition of Sunday labor the general result was that 23 per cent. of masters and 32 per cent. of the men believe in an unlimited prohibition; 39 per cent. of masters and 41 per cent. of men in a limited prohibition, while 38 per cent. of the master and 27 per cent of the men hold any kind of prohibition to be impracticable. Distributed among the different classes of occupations these numbers become in great industries and factories, for unlimited prohibition, 13 per cent. masters, 18

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per cent. men; for limited prohibition, 54 per cent. masters, 57 per cent. men; for no prohibition, 33 per cent. masters, 25 per cent. men. In handicrafts, for unlimited prohibition, 18 per cent. masters, 21 per cent. men; for limited prohibition, 41 per cent. masters, 52 per cent. men; for no prohibition, 41 per cent. masters, 27 per cent. men. In trade, for unlimited prohibition, 41 per cent. masters, 59.5 per cent. men; for limited prohibition, 27 per cent. masters, 18.5 per cent. men; for no prohibition, 32 per cent. masters, 22 per cent. men. In transport, for unlimited prohibition, 12 per cent masters, 16 per cent. men; for limited prohibition, 11.5 per cent. masters, 14 per. cent. men; for no prohibition, 76 per cent. masters, 70 per cent. men. — LEIPSIC.

SAMUEL ROLFE MILLAR,
Consul.

RAMIE FIBER.

The European market for ramie is London. The ramie prepared by the Chinese is the only salable article, as their mode of stripping leaves the ribbon entire, and retains the luster and strength which constitute its value. This fact is a strong argument in favor of stripping the stalks while green.

The plantation of ramie from which the Berthet machine expected to obtain its experimental supply was not sufficiently advanced last year to test the merits of the machine. Mr. Berthet told me that he could simplify his machine, and thus diminish cost, weight, and motive power. He also suggested that the fiber, when stripped, can be cleansed from its gum and bleached by an inexpensive chemical process, such as he now uses in his works, at a cost of about 60 cents per 100 pounds. By this process the weight is reduced about 30 per cent., and the market value enhanced as the article is advanced to another stage in its manufacture. The price of Chinese ramie is $12 per 100 pounds. The inclosed specimen of American ramie was probably as good as the Chinese, but from its treatment has no more value than waste, which is about $3 per 100 pounds. I inclose also specimens of ramie sold in London, and in the bleached state, as alluded to above.

I noticed that a machine of American invention had been recently patented for stripping osiers, and it occurred to me that the same might be utilized for ramie, the stalk of which differs but little in size.

The French Government has organized a competitive exhibition of machines for decorticating ramie, to take place in August next at Paris, and 30,000 francs have been appropriated to defray expenses. — ROUEN, FRANCE, *May 16, 1888.*

CHAS. P. WILLIAMS,
Consul.

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CHINESE IMMIGRATION IN STRAITS SETTLEMENTS.

There were 167,906 Chinese immigrants examined on board vessels and in the landing depots on their arrival at Singapore, as against 146,862 in 1886. In Singapore there has been an increase of 13,763, and in Penang of 8,162. Of the whole number, 101,094 landed in Singapore, and 65,348 went on to Penang, the numbers in the previous years being 87,331 and 57,186, respectively. Of the Singapore immigrants, 765 proceeded to Malacca and 3,096 to other places. In Singapore 19,496 and in Penang 22,904 were admitted into the licensed depots. The number of immigrants whose passages were unpaid was greater by 3,208 than the number in 1886.

The number of women who arrived in the colony was 6,271, as against 4,714 in the preceding year. Of these, 3,037 landed in Singapore, 2,667 went on to Penang, and 567 to other places.

There were 51,859 contracts to labor executed in the colony, as against 45,717 in 1886. Of these, 24,567 were for labor in the colony and the protected native states, and 27,292 for labor in other places.

RAILROADS IN JAPAN.

The island of Kiusiu, of which Nagasaki is the only port open to foreigners, is the most southern of the four islands into which the main Empire of Japan is geographically divided. It has an area of 15,069 square miles, and a population of 5,026,285, or 333.65 people to the square mile. Being less opened than any of the other great divisions its interior is less known to foreigners; the interest of foreign merchants and others in Japan being based almost entirely on consideration of Hondo, the main island. The benefit to be derived commercially, therefore, from a railroad that would traverse the island from a port on Shimonoseki Strait in the north, to the cities of Kumamoto in the south and Nagasaki in the southwest, with branches to Sasebo, Misumo, Yatsushiro, passing through the provinces of Chikuzen, Chikugo, and Higo, tapping their rich coal-fields and furnishing easy and economic transportation for the superabundant crops of rice, wheat, barley, and other products, can hardly be overestimated. From a military point of view also a railway would be of some strategical importance, as it would give increased facilities of transport to the naval rendezvous and depot at Sasebo, which is being constructed by the Government at the entrance to the Gulf of Omura. Recognizing the importance of a railway, therefore, in trade and other considerations, the people of Tukuoka ken originated the project of the Kiusiu railroad in 1886, and invited subscriptions to the stock. They were joined by Saga ken and Kumamoto. Later Nagasaki ken joined heartily in the scheme. The amount of stock taken far exceeded the most sanguine expectations of the originators. These four ken petitioned the Government for a charter to build. The Government, in

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answer, granted permission to form a company, and appointed a president to serve ten years, and three representatives of each ken, making twelve in all. The duty of these representatives was to shape the company, clearly outline the road, furnish maps, plans, estimates, etc., the Government loaning the services of a German inspector of railways in its employ to superintend the surveys. These, with a petition, have been lately submitted by the president, and the Government has assented and will sanction the building of the road. In the near future there will be a general meeting of the stockholders at which directors will be elected and the building of the road, in all probability, will be begun.

The accompanying sketch-map of the part of Kiusiu traversed by the proposed road has been prepared to show the principal stations and the general route.

Moji, an excellent harbor, opposite Shimonoseki, on the Kiusiu side of the strait; of no importance save as a terminal point to connect with a proposed road from Shimonoseki to Hiogo, in Hondo. From Kokura, population 8,500, a branch road will lead to Giojo, a harbor town on the northeast coast of Kiusiu. Fukuoka, one of the largest cities on the island; poor harbor, opening to the north; cold in winter; no breakwater; landing facilities bad; built on low sandy plain, separated by a small stream from Hakata, which is noted for native silk fabrics, although recently silk suitable for foreign wear, etc., has been successfully made, have populations aggregating 50,000. The road from Fukuoka to Kurume traverses a fertile and well-populated valley filled with villages; very gradual in ascent; spanning the Chikugo gawa by a bridge necessarily of some magnitude. Tajiro, the junction of the Nagasaki and Kumamoto branches, a small town, but located in a very fertile country, growing two crops yearly of wheat, buckwheat, turnips, radishes, and beans, which are harvested in the spring in time for the ground to be prepared to receive rice, which is harvested in the fall. In this district there are immense numbers of the haji tree, from which vegetable wax is obtained; also an oil greatly used by the Japanese. Camphor trees, the trunks of some of which are over 10 feet in diameter at the base, abound. Kurume, population 21,000, lying close to the river Chikugo, is a busy and thrifty city, noted for the productions of its looms. The water of Kurume is celebrated for its purity, similar to that of Kioto, and on this account noted for good and fast dyes in cotton and silk materials; a very important station. Yamagawa, population 8,500, is the chief town of Yamagawa ken, which produces cotton largely; also vegetable wax, and the fine reeds from which upper mat surfaces are made. The country is flat and cut up by many tide-canals reaching far inland. It is densely populated, and on every side of the road one sees groups of large villages and towns. The ground is underlaid with excellent coal, which is mined in a very primitive way, save at Miiki. The project of a railroad is causing much commotion among the small coal men, and they talk of buying mining machinery, coal-cars, etc.

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Miiki—this station gives a name to the coal which is mined in this region. The mines which belong to the Imperial Government are located a little distance from the town. There are some 2,500 convicts employed, the Government working the mines. The output is about 1,000 tons per day. The latest surveys show that the coal as mined at present will not be exhausted for three hundred years. Miiki coal is sent to Kuchinotsu in boats across Shimabara Gulf and thence shipped in large steamers to the several ports of China and Japan, but on completion of the railway it is proposed to transport the coal in cars to Misumo and make it the shipping port. Takase and Todoroki are bright, well-built towns, situated in a well cultivated country swarming with people. Kumamoto, population 4,500, is considered the chief city of Kiusiu, but its prominence is largely dependent upon it being a garrison town with a strong castle of the Japanese type. It is not noted for any particular manufactures. It is, however, the mart for the exchange of considerable quantities of staple commodities such as rice, camphor, mushrooms, etc., produced in central and southern Kiusiu. The farms throughout this region are large and productive, and coal is found in several directions from the city. Kumamoto, 3 miles inland, the nearest harbor, is so shallow that the smallest vessels are compelled to drop their anchors 4 miles off shore. The officials and chief citizens of the place being alive to the requirements of their city and wishing to draw to the place connections with the rapidly developing mining interests about it, thus taking precautions against having trade in southern Kiusiu turned from them to Saga, Nagasaki or Fuguoka, conceived the idea of building a port for the city. Misumi, a small closely shut-in but deep harbor, 23 miles to the southwest of the city, was selected for the purpose. The Imperial Government gave one-third of the money needed, and during the past three years the Kumamoto government has spent 300,000 yen in opening this port and building a highway to it. On this road it was originally intended to lay a railroad, and this was really the origin of the Kiusiu Railroad Company. The road was finished in the summer of 1887 at a cost of 200,000 yen. It is well appearing, level, well-ballasted, and has good bridges, the greater part of it being a shelf cut of the hill-sides along the sea-coast. The town of Misumi is a little flat about 25,000 feet long and 600 feet wide, made by cutting down rocky hill faces and filling in the sea-shore. The streets are well paved with granite blocks, with heavy granite gutters, covered drains, and three or four deep tide drains or ways of granite, running through the town. The sea face is also magnificently constructed of granite. Some European model port was doubtless closely followed in laying out the place; Japanese labor is cheap and stone is abundant all about Misumi, yet 100,000 yen has been spent on this harbor. The attempt to make the new sea-port of Kumamoto the model harbor of Japan has been successfully accomplished. The harbor is a part of the very winding strait separating Amakusa from the main-land. It is very small, not over a quarter of a mile wide, and shut in closely from the sea, the entrance to the strait being only a few hundred feet wide, but the water is very deep,

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affording a safe anchorage for the largest ships. On the completion of the railroad Misumi will be the shipping port also of the Miiki coal mines instead of Kuchinotsu. The road from Tajiro to Nagasaki passes through a fine country densely populated and very productive. Saga, a very thrifty and flourishing city; Arita, a large place and of importance, producing vast quantities of porcelain; and Sasebo, one of the five military harbors now being established, are the principal stations. Nagasaki, an open treaty port, population 50,000; excellent harbor; imports, 1885, $1,154,207; exports, $3,495,202. Imports, textile fabrics, petroleum, sugar, American canned goods, sewing-machines, California wines, small and light hardware. Exports, coal, tea, camphor, tobacco, wheat, vegetable wax, porcelain. Important naval station. Large dock and engine works are located at this port. The building of this road ought to stir up a brisk trade of imported goods and should very greatly alter the trade of Nagasaki for the better and raise the general reputation of this part of Kiusiu. The surveyed route from Fukuoka to Kumamoto and Misumi is well adapted for railroad construction, there being only one or two really difficult places on it. It is made up largely of long perfectly straight stretches of macadimized road recently built by the different local governments. The route from Tajiro to Nagasaki will offer more difficulties. The stretches between Ureshino and Sonogi, Isahaya, and Nagasaki, in all about 10 miles, being especially bad, requiring high bridging, deep cuttings, and tunnels. The whole line may be divided for convenience into three sections—Maji to Kurume, 69 miles; Kurume to Yatsushiro and Misumi, 108 miles; Tajiro to Nagasaki and Sasebo, 93 miles. Total length of proposed railway, 270 miles. It has been estimated that the cost of road will approach 10,134,813 yen; average cost per mile, 37,400 yen. If we take into consideration the cost of construction of the existing Japanese railways the estimated cost per mile should be at least 60,000 yen. The published cost of the roads already constructed is as follows:

	Yen per mile.
Tokio to Yokohama	178,743
Kobe to Osaka	220,815
Kioto to Osaka	103,448
Kioto to Otsu	66,424

The total annual income, after the completion of the line, based on returns of produce yielded in the Fukuoka ken in 1882 and on the returns of the traveling population of the districts through which the line is to pass, is estimated at about $1,400,000.

This Kiusiu road is the second principal railroad in Japan proposed to be built privately. The Sanyodo Railroad (Kobe to Shimonoseki) is private, but its stockholders have yielded the construction of the road entirely to the Government and it will be built like other Government roads on the main island. Weight of rail 60 pounds, gauge 3 feet 6 inches. Many of the stockholders of the Kiusiu road, especially in the neighborhood of Kumamoto, it is said (as they will build the road using the best obtainable supplies irrespective

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of nationality), urge that the 60-pound rail of the Government is too heavy and uselessly expensive, and claim with the Americans that the 30 to 40 pound steel rail is right for the 3-feet 6-inch gauge, they also favor the American locomotive, which is peculiarly adapted to the Arita–Sonogi stretch of the Nagasaki branch. Should the light rail be adopted American rolling stock may be in demand. In all probability, however, the Imperial Government will fix the gauge at 3 feet 6 inches and the weight of rail at 60 pounds, which weight of rail is unreasonable to Americans when they remember that 70 pounds is the weight of the rail of the Pennsylvania Railroad with its heavy locomotives, while here the gauge on the existing roads is but 3 feet 6 inches and the heaviest locomotives not over 35 tons weight. It is hoped that in the future the Americans will get a fair share of Government contracts and do a larger business with private companies in the way of supplying railroad material, steamships, etc.

I beg to inclose clippings from the Japan Mail, published at Yokohama, commenting on the Kiusiu Railroad and Miiki coal mines.—NAGASAKI, JAPAN, *May 9, 1888.*

JOHN M. BIRCH,
Consul.

[NEWSPAPER EXTRACT.]

The project of a railway in Kiusiu has elicited some of the rosy estimates which usually brighten the inauguration of such schemes. The committee appointed by the projectors has held several meetings at Hakata, in Chikuzen, and has drawn up a constitution for the company, as well as a memorial to Government for the concession. The Nichi Nichi Shimbun says that no doubt need be entertained with regard to the assent of the authorities, as Prefect Yasuba, during his recent visit to the capital, conferred with the ministers upon whom the decision will devolve. Of the first section of the proposed line—from Monji-ura, in the province of Buzen, to Misumi-minato, in the province of Higo, about 150 miles in length—the portion lying in the prefecture of Fukuoka, some 90 miles has already been surveyed. Elaborate statistics have also been prepared under Prefect Yasuba's directions, showing the probable earnings of that portion of the section. In these statistics the quantities of products exported from and imported into the prefecture in 1882 are taken as a basis, and ample corrections are applied on account of the difference between the state of the markets then and now. The result is that the maximum weight of the goods which might pass over the line is 956,268,995 catties, and to this total a correction of 30 per cent. is applied on account of other routes. At the rates of 4 and 8 rin a ri per 2 catties of heavy and light goods, respectively, the receipts from this source amount to 159,288 yen. With regard to passengers, the number of persons who traveled to and from Fukuoka in the districts lying along the line in 1882 was 1,094,023. These are divided into middle and lower classes, the transport of the former being estimated at 4 sen and that of the latter at 2 sen apiece per ri (2½ miles). The receipts from this source foot up to 141,194 yen, and the total earnings of the line aggregate 300,482 yen. Two-fifths of the aggregate are put down to working expenses, and the result as to net earnings is 180,290 yen. The cost of construction is estimated at 50,000 yen per ri, giving a sum of 1,800,000 for the whole 36 ri (90 miles), and on this assumption a dividend of over 10 per cent. is predicted. The prospect is said to have aroused much enthusiasm in Fukuoka, and the inhabitants of Osaka and other places are hastening to subscribe. The people of Kumamoto are described as having been conspicuously zealous from the outset, and those of Saga prefecture, though somewhat lukewarm at first, are now joining heartily in the scheme.

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It will be seen at once that the above estimate includes some points which require modification. The rates for passenger traffic are small—only three-fifths of those charged on the Tokio-Yokohama line, where, according to the Fukuoka estimate, second and third-class tickets should cost 18 sen and 36 sen, respectively, instead of 30 sen and 60 sen as at present. Moreover, the number of persons who have hitherto traveled by road is by no means a fair criterion of the number that would be likely to travel by railway. The tendency of railways is to develop the passenger traffic enormously. The experience of Japan in this respect has been uniform with the experience of Western countries. We should be inclined, therefore, to add from 30 to 50 per cent. to the sum set down against earnings from the passenger source. The case of goods is different. It is true that an inland line, like that under consideration, would be comparatively free from the competition of coasting steamers, though this immunity does not extend to the portion (18 ri) between Monji-ura and Fukuoka, and, further, the Fukuoka road would not have to contend with even river traffic. But for some reason or other the carriage of goods by rail has not yet recommended itself largely to Japanese producers. The Tokio-Takasaki line, for example, in spite of its favorable situation, has not succeeded in attracting this species of traffic to an appreciable extent. Admitting that it is handicapped by the great rivers which traverse the districts it crosses; that its capabilities as a carrier of market supplies are virtually annulled by the inconvenient location of the terminus, and that the directors have not yet laid themselves out seriously to meet the convenience of producers, there still remains the conservatism of the Japanese farmer, who has not learned to set a pecuniary value on his time or on the exercise of his thews and sinews. We should be disposed, therefore, to conclude that the projectors of the Kiusiu line take a too sanguine view when they look forward to obtaining 70 per cent. of the goods' traffic in the district. But the most inexplicable figure in their calculations is the estimate of the cost of construction. No railway in Japan has been built for 50,000 yen a ri. Even the Poronai line cost over 70,000 yen, and it is not to be supposed that the method of construction employed in Hokkaido will be followed in Kiusiu. Three million yen seems a more correct estimate on account of cost of construction than 1,800,000. Such errors of calculation, however, cause incomparably less concern than the wholesale reductions which the floating capital of Japan is undergoing. What with Nakasendo bonds, naval bonds, Kinsatsu exchange bonds, redemption bonds, and Kiusiu railway scrip, it is evident that ability to meet the demands of ordinary commerce is constantly diminished, and that the much-to-be-desired period when such demands will arise is proportionately deferred.

The Mainichi Shimbun recommends the promoters of Japanese railways to intrust the work of construction to American engineers. Public attention has been strongly directed of late to railway enterprise. Lines from Kobe to Shimonoseki, from the north to the south of Kiusiu, from Tokio to Hachioji, and between places in other localities, are projected. The idea that this industry must of necessity be left to officialdom—an idea long maintained—has been abandoned, and capitalists everywhere throughout the Empire are hastening to invest their money in iron roads. But the question of construction is still a difficulty. Most people think that the only feasible course is to enlist the services of the railway department. The Mainichi Shimbun, however, strongly condemns this plan. On the score of delay alone, if for no other reason, such a burden should not be placed on official shoulders. Better employ American engineers, says our contemporary, plenty of whom would be quite willing to undertake the work.

Respecting the intended sale of the Miike coal mine, the Choya Shimbun rejoices that, after its discussion of the affairs of the mine in a series of articles published last autumn, the attention both of the public and of the Government was turned to the subject, and that a determination to sell the property on the 1st of next January—*i. e.*, immediately at the close of the existing arrangement between the Government and the Mitsui Bussan Kaisha—appeared in the Official Gazette a few days ago. It avers that, while private concerns have been seriously affected by the monopolistic agency enjoyed since the beginning of 1879 by the

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Mitsui Bussan Kaisha, the Government itself until lately worked the mine at a loss, and for several years the agents were the only people who really got any profit out of the concern. Reviewing, however, the prospects of the mine as recently extended, it has little doubt that the reserve price of 4,000,000 yen will be exceeded in the bidding. In 1886 there was a clear profit of 195,000 yen on the year's business, or close upon 5 per cent. on 4,000,000 yen. If to this be added the substantial profits of the agency and the fact that Government works are seldom economically managed, the authorities certainly have not been too sanguine in assuming that the property will fetch at least 4,000,000 yen in the market. The purchasers, however, should be prepared to spend something like a million over and above the buying price, in developing and reforming the whole system of the works. That, with such a total to face, bidders will be numerous can not be expected. And, as nothing could be more undesirable than that this great property should come into the possession of an association of a multitude of small capitalists, it is to be hoped that men of real substance and business capacity will form themselves into syndicates and bid for the mine, which would thus, after its sale, be conducted on sound practical lines. The Choya Shimbun trusts, lastly, that the whole transaction of the sale may be so clear and straightforward, and free from suspicion of jobbery or collusion, as to justify the fullest public confidence.

Continuing the subject in another article the same journal observes that while the recent resolve of the Government is viewed with unmixed satisfaction by the people generally, one or two classes are already grumbling. These classes are, first, persons who enjoy beneficial monopolies of agencies in connection with Government business or properties, and who fear that the example of the Miike mine may be extended to other quarters affecting their own particular interests; and, secondly, share speculators. Certain wise terms in the conditions of sale effectually provide against mere gambling in the Miike mine stocks. On the future of the mine the Choya Shimbun states that the whole quantity of coal is estimated at 230,000,000 tons, enough to last for two hundred and thirty years at 1,000,000 tons per annum; that it is the greatest mine in Japan; and that when the Takashima mine is worked out (which the Choya puts down at seven or eight years hence), Miike alone will furnish the coal for export to Shanghai and Hong-Kong. Hence, the forthcoming sale of the mine to private purchasers is on all accounts commendable, and the Choya regards it as a step not only good in itself, but in a direction fraught with benefit both to the reality and the spirit of commerce in this country.

COTTON-SPINNING INDUSTRY IN BOHEMIA.

It would not be easy to give a comprehensive view of the conditions of cotton-spinning in the whole Austrian Empire, on account of the great diversity of those conditions in the different provinces, and even within each province by itself. In order to present a summary statement of the consumption of cotton, reference was had in my former report to the whole monarchy. In the present exposé I will confine myself mostly to the specific conditions in Bohemia, the local circumstances in other parts of this Empire not being sufficiently under my observation.

COST OF PRODUCTION.

Cotton-spinning in Bohemia is comparatively in a high state of development. Most of the cotton-mills, considering their products, will bear comparison with the best English factories. But in continuing the parallel with England, which has the most highly developed cotton industries, we find

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that the cost of production in Bohemia, curious as it may appear in view of the prevailing low wages, is not lower than the cost of production in the English cotton-mills; in fact it is somewhat higher. An explanation of this state of things is found in the following causes:

1. The plant of the Bohemian mills is more costly. There are no spinning machines made in this country, hence the necessity of their purchase abroad. They almost invariably come from England. Of late years Switzerland has to some extent become England's competitor in the making of cotton-spinning machines, and in point of prices this competition has met with some success; but experienced spinners always prefer to buy English machines. The importation of such machines from England involves a heavy expense for packing and transportation, to which is to be added the import duty. The cost of packing with delivery at the English sea-port makes from 10 to 12½ per cent. of the value; and they are packed in heavy, solid boxes which greatly enhance the expense of shipping. The import duty is 3 florins in gold per 100 kilograms, or 200 pounds, the Austrian gold florin being equal to about 48 cents. Formerly the duty was 4 florins, but one-half of the amount was returned by way of restitution, leaving the actual duty paid at the rate of 2 florins per 100 kilograms. Consequently there has been a raise of 50 per cent. in the rate of duty. The expense of packing and transportation together with the duty raises the price of the English machines to the Bohemian manufacturer from 25 to 35 per cent. Raw cotton pays no duty, but all other subsidiary materials of the spinning-mills are subject to this class of taxation, and thereby enhanced in price. Card lining, for instance, pays 25 florins in gold per 100 kilograms, belting pays 18 florins, and whatever else is used in this branch of industry is subject to the tariff.

2. The cotton-mills in Bohemia, as a rule, are built on a more expensive scale, with much more regard to comfort and even luxury, than is the case in England. This may be partly a necessity in view of the different climatic conditions, the climate of Bohemia being very changeable, with great extremes of temperature; hence more solid buildings and a more costly protection against climatic influences are demanded.

3. Another cause of the increased cost of production is the high price of coal in Bohemia as compared with its inferior quality, and this is an item of much importance. Both brown coal and common coal is used, according to the facilities of the location. The local freight being generally high, often excessive, there is considerable difference in the cost of the coal when delivered to the consumer. Brown coal of very inferior quality is often sold from 3 to 6 kreuzers per metric centner at the mines, but the cost is raised from 25 to 30 kreuzers (10 to 12 cents) when delivered at the mill. Common coal, also of a poor quality, sells at 20 kreuzers per metric centner at the mines, whereas the cost is from 35 to 50 kreuzers (about 14 to 20 cents) when delivered at the mill.

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4. Lastly, the lower grade of labor contributes to the increased cost of production, as will appear from the sequel. The output per spindle, as stated in the previous report, is 1 pound of yarn per week.

MACHINERY AND MODE OF PRODUCTION.

It may be of some interest to state that the principal English firm which furnishes spinning-machines for the Bohemian cotton-mills is that of Platt Brothers & Co., at Oldham. Here and there machines from other firms are used, but it is an exception to the rule.

As already stated in my former report, the production of cotton yarn ranges up to No. 50, the finer grades being rare. The leading numbers manufactured for home consumption are 36 for warp and 42 for weft. For these two popular numbers American cotton is used almost exclusively.

The Bohemian process of manufacture differs from that which obtains in England in regard to the numbers just mentioned, mainly in the manner of carding, which is double in Bohemia, whereas English spinners in most cases get along with single carding. The reason of this is the different character of labor. The workmen employed in the Bohemian cotton-mills are not equal to the mill hands in the cotton-spinning regions of England in point of experience, dexterity, and general aptitude for their work.

Recently the ring-throstle has also been introduced in Bohemia for the production of warp, and wherever the object is to make warp to be used for dyeing purposes, wound and packed in bundles, the yarn produced by the ring-throstle is highly valued. This machine is purchased as a specialty, mainly from the firm of Messrs. Brooks, in Manchester.

A BOHEMIAN SPECIALTY.

Cotton-waste spinning deserves to be mentioned as a specialty of the Bohemian cotton-yarn manufacture. It is carried on as a collateral industry, so to say, by very small spinners, particularly in the region of Reichenberg. The waste cotton from the blowing machines is, in this spinning process, carded on first or breaker cards, to be thereafter put on finishing cards, furnished with a sliding appliance, and forming the fleece which comes from the cards into separate strips. These are rolled into roving and fed directly to the spinning-machine. This manipulation is borrowed from the wool-spinning process, and it produces a perfectly round, cylindrical thread, which comes from the fact that in this mode of spinning there do not occur any drafts before the spinning machine. For this special branch machines are made also in Austria by the firm of Josefy, in Bielitz; in Germany they are made at Chemnitz. This mode of production not being popular in England, the said Austrian and German machine builders have not to contend with any serious British competition, and they have already gained a firm footing.

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POWER USED.

The Bohemian cotton-mills have to depend mostly on steam-power, only some establishments in northern Bohemia command sufficient water-power, thereby securing a cheaper mode of production.

WAGES.

In regard to the wages of workmen, it is hardly possible to make a reliable general statement. In the mountain districts wages are materially lower than in other parts of the country. Of course, wages differ also according to the character of the work. At the spinning-machines only men and boys are employed. The spinner is the best paid operative, and his weekly earnings are, according to local conditions, from 5 to 10 florins, or $1.90 to $3.80—the florin in currency being equal to a trifle over 38 cents. The boys earn, according to the same conditions of the local labor market, from 2 to 4 florins a week (76 cents to $1.52). Where ring-throstles are used they are run mainly by girls and boys, whose wages are from 3 to 5 florins per week ($1.15 to $1.90).

The other operations are done mostly by female help; drawing frames and flying are done by such exclusively. In the carding-shop the same class of labor is employed to run the machine, the grinding and polishing being performed by men.

The wages of all these subordinate hands are generally a trifle over the wages of common laborers obtaining in the respective district, and they range, according to work and locality, from 3 to 6 florins per week ($1.15 to $2.30). The women employed at the reel are paid on the same scale. The wages are generally fixed by agreement, and this is effected in the different special cases so that the above-given figures are obtained.

Concerning the higher class of employés the following may be said: There is a carding-master and a spinning-master. The pay of these employés varies, according to the size of the mill and their ability, between 10 and 30 florins a week ($3.80 to $11.50). The clerks employed at the office receive the same pay. The directors, or managers, of the smaller class of mills receive a salary of 1,000 to 2,000 florins a year; in the largest mills they receive from 5,000 to 10,000 florins.

HOURS OF LABOR.

A day's work consists now of twelve hours, the working hours being mostly from 6 o'clock a. m. to 7 o'clock p. m., with dinner time from 12 to 1 p. m. There is, however, in Austria a law fixing the day's work at 11 hours; the longer time being simply a concession to the spinning and textile industry. This concession will end on the 11th of June next. The ministry is authorized to extend this concession, but it seems doubtful if that power will be used. The industrial authorities are, besides, empowered to permit an extension of the hours of labor for certain periods, not exceeding three months in any one year, and not over two hours per day.

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SUNDAY WORK.

The new labor laws prohibit factory work on Sunday; only such repairs as are unavoidable may be done on Sunday. On the Catholic holidays work is allowed by law, with due regard to the time needed for attending divine service. But this permission is taken advantage of by only a minority of the mill owners.

FOOD AND DRINK.

The employers do not try in any way to influence the mode of life of their employés. The workmen, as a rule, breakfast on coffee and bread (black or white), without butter. In some cases they only take soup with a piece of bread. For dinner, in the central region of Bohemia, they have meat on several days of the week at least, if not daily. In the mountain districts, however, meat is a very scanty article in the working-man's diet, partly because of the low wages and partly because he is not used to it. Sunday, in most cases, is the only day when meat appears on the working-man's dinner-table. Supper mostly consists of fried sausage and potatoes, with a glass of beer. Most of the workmen take a glass of beer during the working hours in the afternoon; many take a drink of whisky in the morning. There is no great tendency to strong drink among the factory people, and drunkenness is very rare.

CHILD LABOR.

Persons of the age of fourteen to eighteen years employed in the factories are considered youthful workmen. The employment of children under fourteen years used to be quite prevalent, but is now an exception. The compulsory school law prevents, as a rule, the employment of such children in factories.

EDUCATION.

Common school education being compulsory in Bohemia, and the law being actually carried out by the executive power, all the factory people can read and write in their own language. If there are any exceptions they are confined to the aged laborers, whose schooling in their childhood was neglected. — PRAGUE, *April 24, 1888.*

CHARLES JONAS,
Consul.

ECONOMIC STATISTICS OF SWEDEN.

From the annual publication for the year 1886, just issued, known as Befaekning's Statistik, *i. e.*, people's statistics, I have made some extracts, which I have the honor to submit in this dispatch.

The population of Sweden on the 31st day of December, 1886, was 4,717,189, an increase over that of 1885 of 34,420. This population is: Rural, 3,891,801; cities and towns, 825,388. The male population was

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2,290,340; female, 2,426,849. Of the 34,420 increase a fraction over 20,000 is found in cities and towns, showing the same tendency here, as in other countries, for people to gravitate to the larger centers. There were celebrated 30,133 marriages, the smallest number for the past six years. There were 226 divorces granted. The number of children born was 141,801, of which 69,850 males and 66,516 females were born alive; 2,111 boys and 1,496 girls were born dead. In the city of Stockholm there were born 7,377, of which number 2,121 were illegitimate. The whole number of the latter class born in the Kingdom during the year 1886 was 14,377. The deaths were 78,045—39,162 males and 38,883 females. The month of March has the largest death rate, 10 per cent. Scarlet fever and diphtheria were the most fatal type of disease, 3,326 dying from the former and 1,838 from the latter; 1,898 persons died from violence; *i. e.*, from accidents, exposure, and homicide. Of this number 69 were murder, 27 of which number were infanticides. There were 567 suicides, 451 males and 116 females. The total emigration for the year was 32,889, of which number 27,914 went to the United States. There were 5,224 persons of foreign birth who became residents of the Kingdom during the year; 81 of this number becoming naturalized. Twenty-one thousand two hundred and thirty-four persons believe in a religious creed other than Lutheran. The assisted poor amount to 221,911, or 6.73 per cent. of the population of the Kingdom.

For the years 1886–'87 there were 10,154 students in universities, etc., and 746,760 children in the public schools. The total cost of maintaining all institutions of learning for the year was about $4,000,000. There are 19,981 idiots, blind, and deaf mutes.

In the judiciary department there were 31,315 civil cases contested, and judgments to the amount of 14,489,314 crowns rendered, while 66,108 persons were punished under the criminal and quasi criminal code. Of this number 3,243 were sentenced to terms of imprisonment in state prisons; in the remainder only work-house sentences and fines were imposed. The bankruptcy court adjudicated 7,424 cases, while in the court of arbitration there were 61,023 cases submitted.

The number of persons in poor-houses at the close of the year were 221,911, a slight decrease over the past five previous years. I have not been able to obtain the aggregate value of all property held in the Kingdom, and its per capita distribution. The great majority of the people are poor, many extremely so, as is shown from the "assisted" class, comprising, as it does, nearly 7 per cent. of the population.

Upon the showing herein given I make no comment, except to remark that they are not very encouraging either from a social or economic view.—

STOCKHOLM, *May 5, 1888.*

RUFUS MAGEE.

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MINING CONCESSIONS IN ASIA MINOR.

Since making my report on mines in Asia Minor, published in the February number of the CONSULAR REPORTS, an important step in the development of the mineral resources of the Empire has been taken in the convention recently concluded between the Ottoman Government and M. Leonidas Baltazzi for the working of mines. The concession provides for the development and working by a company of the state mines, and such other mines as the company may acquire, under the mining laws of the Empire. The main features of the concession are as follows: The promoter, M. Baltazzi, engages to form a company under the name of the "Société minère de l'Empire Ottoman," with a capital stock of £2,000,000. When one-fourth of the capital stock has been paid in the Government will cede to the company the following mines on a cession of ninety-nine years.

Argentiferous lead mines. — Gumush Hadjikeuy, in the vilayet of Sivas; Akdagh, in the sandjak of Yosgat; Cosan Dagh and Culek, in the vilayet of Adana; Gheban, in the vilayet of Mamowut-ul-Aziz; Cartova, in the vilayet of Kassova; Armondeli, in the vilayet of Trebizond; Sirmanoi, in the vilayet of Trebizond.

Lead mine. — Berekëlli, in the vilayet of Konia.

Copper mines. — Esseli and Carakaya, in the vilayet of Trebizond; Halvali, in the vilayet of Erzeroom; Alanyourt, in the vilayet of Sivas; 100 chine in the vilayet of Diarbekir.

A certain portion of the capital, to be agreed on by the Government and the company, is to be allotted for the working of each mine. At the end of each year the net profits of each mine are to be divided as follows, after paying 6 per cent. interest on the capital employed in working the mine: 40 per cent. to the Government, 40 per cent. to the company, 10 per cent. to the promotor, and 10 per cent. for a reserve fund.

The concession contains the following somewhat ingenious provision regarding possible losses: "If (which may God forbid) there prove to be a loss instead of a gain, it shall be borne exclusively by the company, with the right to offset the same against the reserve fund, if there be any." The company may, with the consent of the Government, abandon any mine proved to be unprofitable on giving six months' notice. The promoter engages to deposit within one month £20,000, to be forfeited to the Government in case the company is not formed or the work begun within the prescribed period. A commissioner, appointed by the Government and paid by the company, is to be present at all the meetings of the company to protect the Government's interests. The Government may also appoint inspectors, who shall be authorized to investigate the working of the mines and the books of the company at all times. All employés of the company must be natives of the country, except foremen and engineers, who may be foreigners. — SIVAS, *May 17, 1888.*

H. M. JEWETT,
Consul.

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LABOR IN THE BRITISH COLONIES.

A general view of the state of the labor market in the colonies points to much the same conditions as existed a year ago. In Canada there is little change to notice. In the Australasian colonies the depression of trade is certainly less marked than it was; but in Sydney, at any rate, it would seem that there is still a large amount of superfluous labor. In these colonies the question of water supply is all-important, depression being in great measure the consequence of drought. Hence the prominence which is now being given to irrigation, and the interest which has been excited by such undertakings as Messrs. Chaffey's colonies on the Murray River in Victoria and South Australia. In South Africa there can be no doubt that the opening of the Transvaal gold fields has lightened the labor market to a large extent; at the same time it is difficult to point to any distinct and definite demand for any special kind of labor from the outside. British Bechuanaland has attracted much attention lately, but it is, at present, too little developed and too difficult of access to be recommended as a field of emigration to the ordinary British laborer, wanting both capital and experience.

In speaking of the demand for labor in the colonies, it must be borne in mind that each year adds to the facilities for reaching one colony from another in the same part of the world, or one district from another in the same colony. Consequently, a demand for labor of no great permanence or magnitude in any locality may be supplied from a district where labor is less remunerative, without leaving in turn any great gap to be filled up from this country.

At the present time, when there is apparently a growing inclination in this country to promote emigration, it should be fully realized how strong a feeling exists in most of the colonies against the unrestricted and indiscriminate admission of immigrants. This feeling is due partly to the objection of tax-payers to pauper immigrants, partly to the objection of workmen on the spot to competition in the labor market, which may have the effect of reducing the rate of wages. As regards the first of these points, there is constant evidence that the term "pauper" can be given a very wide interpretation, and that the reasonable prejudice against bona fide paupers may be easily extended so as to cover a much wider circle of cases. As regards the second, the influence of trades-unions, far stronger in the colonies than at home, is obviously directed against mechanics rather than against farm laborers; and exaggerated and unreasoning as the opposition to immigration from this source has become, it is ultimately based on two undeniable facts, (1) that farm hands are most wanted in new countries where the land to be opened up is very extensive and the population to be ministered to is very small; (2) that the towns in the colonies as at home, tend to be overstocked. It would seem, then, that promoters of emigration in this country, in order to be in harmony with public feeling in the colonies, should aim at three main objects, (1) sending out emigrants supplied with some small means; (2) securing, by public or private agencies, that they are sent straight up-country from the port of landing; (3) that they are supplied mainly from the country population at home.

By carrying out this last object the congestion of labor in the great towns of this country may be to some extent relieved. Men constantly come to this office, asking whether they are eligible for free passages as farm laborers, who are found, on inquiry, to have migrated some years back from the country to the town, and there too often to have swelled the numbers of the unemployed. Had they remained in the country they would have been qualified for selection as capable farm hands; they would have been welcomed in the colonies instead of losing the advantages of their early training and becoming, as in many cases they are, worse than useless in London.

It is from recognizing the necessity of looking for quality rather than numbers in the selection of emigrants, that schemes of colonization have found so much favor at the present time among those who are interested in the subject of emigration. Their object is, roughly speaking, to establish self-sufficing communities, instead of simply sending out individual emigrants

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to take their chance in a strange country. Schemes of this kind imply bringing in a certain amount of capital, introducing carefully selected settlers, and opening up a definite area as opposed to indiscriminate squatting. It may be mentioned, in this connection, that the governments of South Australia, Queensland, and New Zealand have by legislation in late years encouraged allotments and the formation of village settlements, with the view of making it easier for laboring men to settle on the land, than would be possible by isolated action.

It would be outside the province of the committee to offer any criticisms on the practical difficulties of colonization, but they may point out that the success of such schemes depends entirely on careful selection and continued supervision, difficult in most cases to maintain in distant lands, and that much valuable guidance on this and kindred subjects might be gathered from the records of the colonial land and emigration board, which, a few years ago, formed a subordinate department of the colonization office.

In their last report the committee offered a few words of advice to intending emigrants of the working class. The special circumstances of each individual case must determine a man, whether he should go, where he should go, and when he should go. But, comparing the three great fields of emigration, the climate of Canada makes the time of arrival in the Dominion the most important consideration. Distance and expense of voyage are the main drawback of the Australasian colonies to an intending emigrant; while, in the case of South Africa, he has to consider not only the cost of passage, but also the fact that there is a supply of native labor already on the spot.

There is no colony where a man willing to work, able to work, and indifferent to the kind of work, will not get a living; but agriculturists should be warned that farm work at home is one thing, and in the colonies quite another, and that the conditions of country life in Canada, Australasia, and South Africa are, as a rule, far rougher and lonelier than in England.

Men who have not been from their childhood engaged on the land must remember that in new countries there is not the same strong line drawn between different trades and different branches of the same trade as in our own; and that, therefore, the more specialized a man has become in his work and calling, the less fitted he is to emigrate, partly because he is unlikely in most cases to find an opening in his own speciality in the colonies, partly because he is not well suited to turn his hand to general labor.

Lastly, the warning which the committee have found necessary to insert in their quarterly circulars to the effect that a high rate of wages does not, in the colonies, necessarily imply demand for labor, may well be repeated here. The struggle for existence is not the same in the colonies as at home. Living is, as a rule, an easy matter. Workmen are a stronger element. But the net result in many of the Australian towns, at any rate, is, that while wages are high and hours are short, as compared with the conditions of this country, steady continuous remunerative work is not always to be had; and high wages on three or four days may be counterbalanced by no wages at all during the rest of the week.—*From report on the Emigrants' Information Office, April 26, 1888.*

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AMERICAN BREADSTUFFS IN SWEDEN.

Owing to the fact that corn is the only breadstuff that is imported in any considerable quantity directly into Sweden from the United States, it is impossible to ascertain what proportion of the other grain brought into this country is produced in the United States; but of the various breadstuffs that may be indirectly imported, the only varieties that can be considered as possible products of the United States are wheat, wheat flour, and corn, which are brought here from Denmark, Germany, Great Britain, Belgium, and Norway. Undoubtedly a large portion of these imports are produced in the United States, and are merely re-exported from the countries mentioned.

The following table shows the importation of corn, wheat, and wheat flour for the years 1885 and 1886:

Importations of corn, wheat, and wheat flour for the years 1885 and 1886.

Whence imported.	Corn.		Wheat.		Wheat flour.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
1885.	*Pounds.*	*Dollars.*	*Pounds.*	*Dollars.*	*Pounds.*	*Dollars.*	*Pounds.*	*Dollars.*
Denmark	11,090,683	141,828	35,440,163	603,154	66,469,783	1,696,869	113,000,629	2,441,831
Germany	4,427,082	56,636	39,878,921	678,697	18,659,110	473,338	62,965,113	1,210,671
Great Britain	3,898,231	49,757	6,090,301	103,650	108,014	2,787	10,096,546	136,194
United States	42,277,252	539,637	.....	.....	.....	.....	42,277,252	539,637
Norway	.....	.....	.....	.....	745,277	19,035	745,277	19,035
Total	61,693,248	787,858	81,409,385	1,385,501	85,982,184	2,194,029	229,084,817	4,367,388
1886.								
Denmark	7,650,001	88,873	28,050,228	377,821	60,233,400	1,464,442	95,933,629	1,951,136
Germany	.....	.....	22,557,398	319,919	22,651,267	550,715	45,208,665	870,635
Great Britain	942,258	10,894	2,557,503	36,271	35,582	865	3,535,343	48,031
United States	15,096,386	174,344	.....	.....	54,453	1,323	15,151,039	175,668
Norway	.....	.....	.....	.....	1,399,765	34,032	1,399,785	34,032
Total	23,688,845	274,111	53,165,129	754,011	84,374,487	2,051,377	161,228,461	3,079,502

GOTHENBURG, *May 26, 1888.*

ERNEST A. MAN,
Consul.

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THE CHINA RAILWAY COMPANY.

The China Railway Company, which was started about a year ago to run from the Hai-Ping mines to the Peiho river and thence to Tien-Tsin, has, according to a report which appeared in the Shih Pao (a Chinese newspaper published at Tien-Tsin), completed their line to Fangku, a point on the Peiho river. On the 21st of last month the train began to run from this place to the mines.

All the material—locomotives, carriages, freight wagons, etc.—have arrived. The remaining section of the line will be pushed with unremitting energy, and the directors of the company hope that by July or August the road will be completed to Tien-Tsin, when it will be able to work at its full capacity.

I understand that, as the lines when complete will cost at a very cheap rate, the working will be cheap, and the most rigid economy will be enforced, it is certain that the enterprise will be profitable to the shareholders and of great advantage to the districts accommodated.—PEKING, *May 1, 1888.*

CHARLES DENBY.

COMMERCE, NAVIGATION, AND AGRICULTURE OF NETHERLANDS INDIA.

A work lately published here, and intended as a guide-book of agricultural and commercial enterprises in Netherlands India, contains a review of the principal commercial, culture, and other companies which are at this time operating in the Netherlands and Netherlands India as anonymous associations.

The large and constantly increasing business intercourse between the United States and this country and its colonial possessions, and the great interests our merchants, manufacturers, and producers have in the production of and trade in many of the products of the Dutch Indies, induces me to extract and transcribe from the above mentioned work as follows:

TABLE A.—*Commerce, transportation, and traffic.*

Institutions.	Capital.	Dividends.		Stock quoted at—
		Year.	Per Ct.	
	Florins.			
Nederlandsche Handelmaatschappij, established 1824, Amsterdam.....	35,783,000	1882	5.3	
		1883	7	
		1884	4	
		1885	5.9	
		1886	2.5	119¾
Javasche Bank 1828, Batavia	6,000,000	1882	9.5	
		1883	12.5	
		1884	13	
		1885	7.75	
		1886	6	146

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TABLE A. — *Commerce, transportation, and traffic.* — Continued.

Institutions.	Capital.	Dividends.		Stock quoted at—
		Year.	Per Ct.	
	Florins.			
Nederlandsch Indisch Handelsbank, 1863, Amsterdam	7,200,000	1882	6.7	
		1883	6.1	
		1884	.....	
		1885	2½	
		1886	.....	51¼
Koloniale Bank, 1861, Amsterdam	5,000,000	1882	5	
		1886	.....	44½
Internationale Crediet en Handelsvereeniging, Rotterdam	5,000,000	1882	9.2	
		1883	6	
		1884	2	
		1885	3.2	
		1886	.....	75¼
Handelsvereeniging Amsterdam, 1879, Amsterdam	2,500,000	1882	1.5	
		1883	9	
		1884	5	
		1886	.....	87
Moluksche Handelsvennootschap, 1881, Amsterdam	1,000,000	.....	.....	90
Nederlandsch-Indische Ecomptomaatschappij, 1857, Batavia	1,000,000	1882	8.5	
		1883	7.5	
		1884	7.5	
		1885	7.5	
		1886	.....	200
Nederlandsch-Indische Stoomvaartmaatschappij, 1856, The Hague	5,589,360	1882	12	
		1883	10	
		1884	8	
		1885	8	
		1886	.....	
Stoomvaartmaatschappij Nederland, 1870, Amsterdam	7,000,000	.....	.....	
Stoomvaartmaatschappij Rotterdam, 1881, Rotterdam	1,300,000	.....	.....	
Rotterdamsche Lloyd, 1883, Rotterdam	8,000,000	.....	.....	
Nederlandsch-Indische Spoorwegmaatschappij, 1863, The Hague	11,450,000	1882	8.75	
		1883	8.25	
		1884	8.25	
		1885	7.5	
		1886	2	135
Bataviasche Ooster Spoorwegmaatschappij, 1884, Amsterdam	1,700,000	1884	4.5	
		1885	4.5	
Deli Spoorwegmaatschappij, 1880, Amsterdam	2,600,000	.....	.....	
Java Spoorwegmaatschappij, 1884, Amsterdam	1,440,000	.....	.....	
Nederlandsch-Indische Tramwegmaatschappij, 1881, Amsterdam	5,000,000	1884	3	
		1885	3	
		1886	3	
Samarang-Joana Stoomtrammaatschappij, 1881, The Hague	4,000,000	1882	2½	
		1883	2	
		1884	3.5	
		1885	5	
		1886	.....	200
Maatschappij tot Exploitatie van droogdokker, en reparatiewerken in Nederlandsch Indie, 1885, Batavia	1,000,000	1885	1.6	

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TABLE B.—*Agricultural industry.*

Name.	Capital.
	Florins.
Amsterdamsche Deli-Compagnie, 1879, Amsterdam	700,000
Deli Handelmaatschappij, 1887, Amsterdam	650,000
Batjanmaatschappij, 1881, The Hague	2,400,000
Cultuurmaatschappij Ampel Gading, 1882, Rotterdam	1,000,000
Delimaatschappij, 1876, Amsterdam	2,900,000
Kinamaatschappij Soekawana, 1884, Amsterdam	9,000,000
Oost Java Cultuurmaatschappij, 1881, Amsterdam	500,000
Palembang-Maatschappij, 1886, Amsterdam	2,400,000
Tabakmaatschappij Arendsburg, 1877, Rotterdam	1,000,000
Tanah-Wangi-Maatschappij, 1876, Amsterdam	1,000,000
Billitonmaatschappij, 1860, The Hague	2,025,000
Mijnbouwmaatschappij Salida, 1881, Amsterdam	300,000
Oost Sumatra Mijn en Landbouwmaatschappij, 1885, Amsterdam	1,200,000
Bagelen Thee en Kinamaatschappij, 1883, Batavia	650,000
Deli-Batavia-Maatschappij, 1875, Batavia	1,000,000
Cultuurmaatschappij Sinagar-Tjirohani, 1884, Batavia	650,000
Batoe-Bahra Tabakmaatschappij, 1885, Batavia	500,000
Amsterdamsche Koffie cultuurmaatschappij, 1884, Amsterdam	400,000
Boekit-Gompong Cultummaatschappij, 1880, Amsterdam	225,000
Cultuurmaatschappij Djarangan en Boro, 1882, Rotterdam	200,000
Cultuurmaatschappij Kall Bening, 1882, Rotterdam	300,000
Cultuurmaatschappij Loeboe Raja, 1881, Rotterdam	300,000
Cultuurmaatschappij Tjeleng, 1883, Amsterdam	100,000
Cultuurmaatschappij Goenoeng Sarie, 1885, Rotterdam	150,000
Deli Tabakmaatschappij Karang Gading, 1885, Amsterdam	250,000
Kalimaas Cultuurmaatschappij, 1884, Rotterdam	315,000
Kina-Cultuurmaatschappij Chinchona, 1880, Amsterdam	220,000
Kina-Cultuurmaatschappij Garoet, 1881, Amsterdam	120,000
Kinamaatschappij Melatti, 1884, Amsterdam	200,000
Kinamaatschappij Djajagiri, 1885, Haarlem	250,000
Koffie-en Kina onderneming Tjempaka Warna, 1884, Amsterdam	200,000
Maatschappij tot Exploitatie der Koffie onderneming Mobo, 1884, Amsterdam	300,000
Maatschappij tot Exploitatie van het koffie land Tanaw, 1884, The Hague	200,000
Maatschappij tot Exploitatie van het land Soember Tjoelang, 1885, Dordrecht	240,000
Nederlandsch-Indische Landcommaatschappij, 1884, Amsterdam	9,000,000
Nederlandsch-Indische Cultuurmaatschappij, 1884, Amsterdam	300,000
Cultuurmaatschappij Kemloko, 1885, The Hague	420,000
Djoeleg Exploitatiemaatschappij, 1886, Amsterdam	125,000
Rotterdamsche Kinamaatschappij Tjikembang, 1883, Rotterdam	
Tawangredjo Cultuurmaatschappij, 1883, Rotterdam	450,000
Borneo Mijnmaatschappij, 1884, Amsterdam	288,000
Maatschappij Goenoeng Waringin, 1879, Batavia	
Maatschappij Tjiseureuh, 1883, Batavia	300,000
Maatschappij Babajang, 1883, Batavia	300,000
Kinamaatschappij Tjimonteh, 1883, Batavia	129,000
Maatschappij Panjairan, 1883, Batavia	300,000
Maatschappij Pasir Telaga Warna, 1883, Batavia	350,000
Batavia-Kinamaatschappij, 1883, Batavia	160,000
Kina-Cultuurmaatschappij Preanger, 1883, Batavia	300,000
Tjidammer-Cultuurmaatschappij, 1883, Batavia	300,000
Maatschappij Masarang, 1881, Batavia	320,000
Kina-Cultuurmaatschappij, 1882, Batavia	210,000
Lebak-Cultuurmaatschappij, 1883, Batavia	140,000
Maatschappij Soekaradja, 1884, Batavia	100,000
Cultuurmaatschappij Sindangsarie, 1884, Batavia	100,000
Cultuurmaatschappij Permati, 1886, Batavia	150,000
Maatschappij Lodaja, 1883, Bandseng	300,000
Maatschappij tot Exploitatie van het land Tjipopshan, 1882, Bandseng	100,000
Maatschappij Indragiri, 1883, Bandseng	200,000

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TABLE B.—*Agricultural industry*—Continued.

Name.	Capital.
	Florins.
Kina-Cultuurmaatschappij Tjitus, 1883, Bandseng	200,000
Yennootschap Gogoniti, 1883, Semarang	200,000
Kpbon-Agoengmaatschappij, 1883, Semarang	200,000
Maatschappij Poendoeng, 1883, Semarang	200,000
Indigomaatschappij Plosso, 1885, Semarang	60,000
Cultuurmaatschappij Gawok, 1885, Semarang	100,000
Indigomaatschappij Tjarœban, 1885, Samarang	60,000
Landbouwmaatschappij Djambé Tawon, 1886, Semarang	15,000
Maatschappij Kali Glidik, 1883, Soerabaya	200,000
Maatschappij Soember Wader, Soerabaya	.....
Maatschappij Kwi Sari, Soerabya	.....
Maatschappij Land Djeplak, Soerabaya	100,000
Adi-Redjo Kinamaatschappij, 1883, Soerabaya	140,000
Maatschappij Oentoeng, 1882, Soerabaya	150,000
Suikerfabriek Oeteran, 1883, Soerabaya	400,000
Suikerfabriek Kaliwoengoe, 1884, Soerabaya	300,000
Bezoeki Cultuurmaatschappij, 1884, Soerabaya	15,000
Maatschappij tot Exploitatie van de Kinaonderneming Telaga Patengah, 1884, Soerabaya	550,000
Maatschappij tot Exploitatie van de Suikerfabriek Assem Bagoes, 1884, Soerabaya	550,000
Maatschappij Bedali, 1883, Soerabaya	115,000
Ledgerwood Company, Pasoeroean	.....
Cultuurmaatschappij Bandoeroto, 1885, Probolingo	180,000
Landbouwonderneming Mendoet, 1882, Jogjokarta	410,000
Cultuurmaatschappij Batoe Djamoes, 1886, Soerakarta	300,000
Cultuurmaatschappij Tarik, 1886, Soerakarta	60,000
Indigo onderneming Garoem Blitar, Blitar	.....
Blitar Tabakmaatschappij, Kediri	.....
Maatschappij tot Exploitatie van het land Djengkol, 1885, Kediri	130,000
Kina-Cultuurmaatschappij, Tjilongkrang, 1886, Padang	150,000
Langkat Associatie, east coast of Sumatra	.....
Paja Djamboe Company, east coast of Sumatra	.....
Galang Tobacco Company, east coast of Sumatra	.....
Société des colons explorateurs, Deli	.....
Veeteelt onderneming Argalinga, 1885, Batavia	250,000
Naamlooze Vennootschap Cultuurmaatschappij Penampean, 1886, Semarang	660,000
Cultuurmaatschappij Triagan, 1886, Semarang	600,000
Naamlooze Vennootschap Maatschappij tot Exploitatie der Pamanoekan en Tjiassemlanden, 1886, Batavia	7,500,000
Naamlooze Vennootschap Houtaankap Siak, 1886, Laboean-Deli	90,000
Naamlooze Vennootschap Cultuurmaatschappij Bintang, 1887, Blitar	100,000
Naamlooze Vennootschap Landbouwmaatschappij Struiswijk, 1887, Batavia	302,400
Naamlooze Vennootschap Maatschappij tot Exploitatie van het land Pantjoer, 1887, Sitoebondo.	120,000
Maatschappij tot Exploitatie van de suiker ondernemingen Sentanen-lor, Brangkal en Dinoyo, 1887, Soerabaya	1,800,000
Naamlooze Vennootschap Cultuurmaatschappij Pagottan, 1887, Batavia	200,000
Naamlooze Vennootschap Borneo Tabak Maatschappij, 1887, Batavi	240,000
Naamlooze Vennootschap Maatschappij tot Exploitatie van de Koffie onderneming Soeko Ramé, 1887, Soerabaya	450,000
Naamlooze Vennootschap Cultuurmaatschappij Soekamangli, 1887, Semarang	200,000
Naamlooze Vennootschap Tegoewangie, 1884, Soerabaya	39,500
Naamlooze Vennootschap Maatschappij Kredjo, 1886, Soerakarta	41,500
Maatschappij tot Exploitatie van zekere landen, Soerabaya*	1,918,000

* This seems to be a corporation which has a very extended field of operations. It carries on or controls or administrates some sixteen different agricultural enterprises. Each of them is separately organized, has its own name or designation, is worked upon or with its own capital, and the activity of the company (maatschappij) reaches out in every direction throughout the colonies. The date of its establishment is not stated; the above is the aggregate amount of the capital of the several institutions.

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TABLE B.—*Agricultural industry*—Continued.

Name.	Capital.
	Florins.
Karang-nonjko Maatschappij, 1881, Blitar	120,000
Maatschappij Kandat (Bangsri), Kediri	.....
Maatschappij Padangsche Koffiepelmolen, Padang	.....
Maatschappij tot Exploitatie van het erfpachtsperced, Kota Znijdewijn, Padangsche Bovenlanden	.....
Naamlooze Vennootschap Cultuurmaatschappij der Yorstenlanden, 1888, Amsterdam	10,265,000
Naamlooze Vennootschap Koffie en Kina-Cultuurmaatschappij Pagilaran, 1888, Amsterdam	1,000,000
Naamlooze Vennootschap Siak Tin en Landbouwmaatschappij, 1888, Amsterdam	2,400,000
Naamlooze Vennootschap Cultuurmaatschappij, Gending, 1888, Amsterdam	500,000
Naamlooze Vennootschap Kina Cultuurmaatschappij Tjikembar, 1888, Amsterdam	100,000

INSURANCE COMPANIES.

The hand-book from which I copy recounts the names of eighteen marine and fire insurance companies engaged in transacting business in and in connection with the Dutch East India colonies, and mentions certain details relating to the character and status or operations of each. Therefrom I observe that the headquarters of these companies are located at Batavia, Soerabaya, or Semarang, in Java, and only in two cases at Amsterdam. Their aggregate capital is stated to amount to about 44,000,000 florins. They, all of them, almost without exception, it would appear, are doing a more or less prosperous business, as the shares of their capital stock are, nearly as to those of each company, quoted above par, ranging from 100 to 260 per cent. The greater number of them also declared and paid large dividends for the years 1882–'86, in certain instances over 20 per cent.

TABLE C.—*Other branches of industry.*

Name.	Capital.
	Florins.
Nederlandsch-Indische Gasmaatschappij, 1863, Rotterdam	1,750,000
Nederlandsch-Indische Industrie, Fabrick van Stoomwerktuigen te Soerabaija, 1878, Rotterdam	625,000
Bataviasche IJsmaatschappij, 1886, Rotterdam	350,000
Nederlandsch-Indische Cement onderneming Bintang, 1886, Batavia	300,000
Naamlooze Vennootschap Mestfabrick Semarang, 1886, Semarang	150,000
Javasche Vischreederij, 1884, Batavia	135,000

In concluding I would remark that under agricultural industry, as relating to the colonies, is in Holland understood the cultivation, raising, growing, and producing crops of every variety and peculiar to that part of the world, embracing coffee, tobacco, sugar, tea, rice, cocoa, spices, indigo, cinchona, and many other articles.

If any parties in the United States at any time require or desire more explicit information concerning one or another of the institutions mentioned, it will always be cheerfully furnished by me if in my possession or obtainable.—AMSTERDAM, *May 7, 1888.*

D. ECKSTEIN,
Consul.

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NORFOLK ISLAND AND ITS RESOURCES.

Norfolk Island is situated in the southwestern Pacific, in (Pier.) 29° 3′ 45″ south latitude and 167° 58′ 6″ east longitude, 980 miles ENE. from Sydney, New South Wales, and about midway between the north cape of New Zealand and the French island of New Caledonia, distant about 380 miles from either point; its dimensions are about 5 miles long by 3 miles wide, with a total area of 8,600 acres. Just outside the limits of the tropics, the extremes of temperature are never reached, the climate being most equable, the thermometer at no time ranging higher than 84 degrees in summer and never lower than 46 degrees in winter. Discovered by the celebrated navigator Cook in one of his early voyages (1774), and described as densely wooded to the water's edge, the island now presents a very different appearance indeed, open park-like downs interspersed by stately groups of the handsome and indigenous pine (*Arancaria excelsa*) meeting the eye in every direction, Mount Pitt (1,028 feet), with its connecting range, and the low-lying adjacent lands to the northwest being the only wooded parts of any consequence. Originally settled by Phillip Gidley King, a lieutenant in King George's navy, in 1788, by a mixed party of convicts and free persons, they lost their vessel, the *Supply*, on the south reef, and after surmounting innumerable difficulties and hardships, formed themselves into a very happy and contented community. But there were breakers ahead. Surrounded, as the island is, except in a few places, by a barrier of perpendicular rocks, abrupt precipices marking almost the entire coast line, it is, as a matter of course, most difficult of access; permeated, besides, by its dreary isolation and monotony, it was peculiarly adapted for the purpose that the English Government had in view, viz, a convict settlement. So, therefore, in 1809, orders were issued to break up the little colony and deport it to Tasmania, which arrangement, much against the wish of many of the colonists, was carried out.

From that time forward, with but little intermission until 1856, the island was used as a convict settlement of the worst type, where irreclaimable prisoners weeded out from the jail-yards of Tasmania and New South Wales were sent, and the place became, as was aptly described by a distinguished botanist visitor, "a hell within a paradise." About the year last mentioned, and early in the fifties, it was understood that the English Government had it in contemplation to abandon the settlement, the results not being such as to justify the expense; consequent, on this intimation, the many influential friends in England of the Pitcairn islanders (descendents of the well-known Bounty mutineers), who, it was stated, were getting overcrowded in their present abode, made strong representation to the Government to have the island handed over to them, as it was thought that the climate, surroundings, and isolation would be most suitable and just the thing. The request was favorably considered by the then Government, and not long after Her Majesty, by an "order in council," transferred the island, with all its num-

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erous buildings, implements, and stock, over to this interesting people, descendents really of those unruly men who, in 1788, defied her grandsire's authority and turned his captain adrift on the open sea—a noble revenge, indeed. The arrangements for transshipment were soon made, and a few months later a ship appeared at Pitcairn, and the whole community, every soul, ninety-five all told, bag and baggage, with their magistrates, chaplain, laws, and peculiarities embarked in the *Morayshire* and sailed for their new home, 3,000 miles away, arriving at Norfolk Island on June 8, 1856, and thus began the present occupation; all that remained of the convict element, every human being, being taken away in the same vessel. A year later, however, a few who were discontented, one or two families, and a few years later again some three or four more, deserted and found their way back to the old home, these few forming the nucleus of the present community there. Kington, the town, is on the south side and was the center of operations during the old régime, and is also now the principal mart for trade. Most of the old private houses are occupied, but the public buildings, with the exception of the commissariat store and the two soldiers' barracks, are in ruins, the inhabitants, which are fast increasing, being scattered all over the island in neat wooden tenements built by themselves. Immediately confronting the town are two small islands or islets, Phillip and Nepean, which afford some little shelter to the pier, which is situated on this side and is indeed the principal landing-place; here most of the business of the island is effected, but on the north side there is also a good landing-place, used when the wind is south or southwards and the pier unapproachable. There is, however, anchorage at both places when the wind is off shore, but that on the south is in bad odor on account of the rocky or foul bottom, while the north side, where the seas appear to be calmer and the holding ground better, is in much more repute with mariners. All the traffic has to be done with whale boats, which are marvelously well handled by the islanders, who often work in waters that would daunt the ordinary boatman, managing their craft with wonderful skill and dexterity. The signals for landing are few and simple: Ensign, good landing; a dark flag over ensign or red flag, go to cascade; dark flag alone, no landing either side.

The soil is exceedingly fertile, composed, as it is, of a dark chocolate loam, or decomposed basalt, and will grow almost any subtropical production beside those of a colder latitude, the temperate climate and the absence of frost being particularly adapted to almost any growth; sweet and Irish potatoes, yams, arrow-root, bananas, coffee, sugar-cane, maize, oranges, lemons, apples, rose-apples, lognats, date-plum, mango, cheromoyer, peach, etc., thrive equally well and give good results. The native vegetation is almost wholly peculiar, and includes the before-mentioned conifer (*Araucaria excelsa*), a palm (*Areca baneri*), and a tree fern (*Alsophila excelsa*), all of which are stated to be the handsomest of their tribes, and are in much repute with neighboring nurserymen; there are besides upwards of thirty different kinds of ferns. The native woods also are good, and some of them

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very durable, and are largely used for fencing and domestic purposes. Only about 400 of the nearly 4,000 acres already alienated are under cultivation, the rest, being well-grassed in places, are grazed over by the sheep, cattle, and horses that roam at will over the uninclosed waste lands. There is, however, a deadly pest in three plants which appear to be steadily advancing, notwithstanding a portion of every year is set apart for their destruction; the plants or weeds alluded to are two solanums (*Sodomacum* and *Auriculatum*) and *Cassia lavigata*. The community gain a subsistence by whaling and agriculture principally. The men are expert whalemen, and are in much repute in our whale ships that cruise in these seas, and in the season when the whales (the humpback) come about, from July to October, inclusive, follow the occupation with assiduity and celerity, the business being most congenial to their habits, which is very "watery." Ordinarily about seven boats are manned, which, in fine weather, every day are launched and with varying success cruise around the island. The average "take" is about 50 tons, which is usually sold on the spot, £22 per ton being the price obtained for last season's oil; a price, considering the heavy working expenses, that leaves little margin to the whalemen. All, however, do not depend on this business alone for a livelihood, some few devoting their attention solely to farming, but the occupations are generally mixed, the whalers cultivating their farms in bad weather, but as a matter of fact nearly everything depends on the success of the fishery. The staple crops of the cottage farms are Irish and sweet potatoes, maize, bananas, and culinary vegetables, which find a ready sale on our whalers, which periodically call for recruits and fresh meat, the trade being carried on by barter, United States cloths and denims being in good repute here; indeed all the boats and gear of the island bear the New Bedford stamp; the men would not look at any other.

The government of the island by powers granted by Her Majesty is home rule, pure and simple, and is vested in three officials — a chief magistrate and two councilors, who are elected annually by the people, the chief magistrate being responsible, and the medium of communication with the higher officials. The three magistrates act under commissions bearing the great seal of the colony, issued by the governor of New South Wales, who, himself, holds a separate authority as governor of Norfolk Island. The governor has, in fact, unlimited power, but holds a very mild sway, allowing the islanders to do very much as they like so long as they do not go too far. The laws are few and primitive, and could be printed on two sheets of foolscap; nevertheless they answer the purpose well, there being no crime to speak of, nor any lock-up or need of one. There is no revenue except a few waifs and strays in the shape of small fines, etc., which seldom amount to much, but is responsible for the signal master's salary of £1.10 ($7.50) per annum, besides a court sweeper at £1 ($5). The chief magistrate's salary is £25, but up to last year it was only £12; this, with the emoluments paid to the colonial surgeon, chaplain, registrar, and postmaster, is paid out of the interest of a fund in Sydney which has been accumulating for some years,

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and began with the sale of 1,000 acres of land to the Melanesian mission. The land tenure—the whole island is subdivided into 50-acre lots—is held in what, in forensic parlance, is called peppercorn grants; the original immigrants from Pitcairn received 50 acres apiece; that is, the elders or heads of families, and likewise for some years after each couple when they married got the same concession. Early in the seventies, however, this was changed, young married couples only getting 25 acres, until in 1884 when the then governor, Lord A. Loftus, visited the island, he refused peremptorily to issue any more grants, on the plea that what was already given was not utilized anything like what it ought to be, and ever since the land question has been a vexing and exercising topic; this, together with annexation to New South Wales, first mooted by the English authorities about eighteen months ago and strenuously, to a man, opposed by the islanders, has of late caused much anxiety to the more thinking portion of the community.

The imports include clothing, groceries, agricultural implements, and timber for building purposes; the exports, oil, wool (output generally 14 to 17 bales), horses, sweet and Irish potatoes, onions, bananas, and sometimes sheep. The oil and wool go either to Auckland or Sydney, the latter port taking besides sweet potatoes and bananas, but for other produce such as horses, onions, Irish potatoes, etc., Noumea, at present, is the only market open to us, and so far with good results. The importation of liquor, except for medical purposes, is absolutely prohibited; the law is strict and the people care little for it; there are no duties, and consequently no custom-house or any other record kept, but the imports and exports together in a favorable year would probably amount to £6,000. Our communications at one time were very erratic, but now and for some time past a great improvement has taken place. From Auckland comes a trading schooner four or five times, and the mission vessel twice (March and July) a year, and the New South Wales Government gives a small subsidy to a Fiji trading steamer to make quarterly calls. Formerly all letters, etc., converged at Auckland and were sent as opportunity offered, but now since the new arrangement at Sydney any mail matter that finds its way there is stopped and sent on by the steamer. The population of the island on December 31, according to the registrar's returns, was 741 all told, viz: Norfolk Island community, 248 males, 276 females = 524; Melanesian Mission, 169 males, 48 females = 217. The return particularizes them as follows: Norfolk community, married couples, 78; widows and widowers, 9 and 10 respectively; above the age of fourteen, 78 males and 66 females; under that age, 114 males and 128 females; strangers, 4 males and 3 females; absent from the island, 36 males and 8 females; Melanesian mission, whites, 14 males and 8 females; blacks, 158 males and 43 females; absent from the island, 3 males and 3 females—white.

The stock returns for the past year are not yet made out; but 2,000 sheep, 1,200 cattle, and 350 horses, although perhaps rather underestimated, is near about correct.

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The sanitary condition of the island is good, the death-rate exceeding low, averaging 9 per 1,000. There is usually little sickness and an entire freedom from malarial fevers of all kinds. The climate is salubrious generally, but at times during the prevalence of N. and NE. winds it is relaxing, but these winds seldom prevail.

The great "Melanesian mission," of the Church of England, has its headquarters here, and is worked by a bishop, the well-known Dr. Selwyn, titular bishop of Melanesia, assisted by a numerous staff of clergymen, mechanics, etc., and has all the appliances at hand for carrying on a large establishment. The first bishop, the lamented Dr. Patterson, who it will probably be remembered was murdered at Santa Cruz some years ago, established, with the consent of the settlers, in 1866, his quarters here, purchasing from Governor Young 1,000 acres of land for the purpose. The mission has numerous stations at the many islands forming the Hebrides, Bomks, and Soloman groups. The principal object is, besides the civilizing process immediately carried on, to capture young men at savage islands and bring them, if suitable, to headquarters and educate them for teachers, much good having already, it is stated, been done in this fashion. Connected and owned by the mission authorities is a handsome auxiliary barkentine, the *Southern Cross*, which, carrying the blue ensign and the olive branch, makes three voyages a year between the headquarters and its many stations, finishing the last trip about the middle of November, when she goes on to Auckland to refit and lay up during the three hurricane months; a mid-winter trip is made to Auckland in June to recruit supplies. The station itself is quite isolated from the other community and stands in its own grounds distant some 3 miles to the NW. of the town; it may be added that the institution in the course of the year is the means of diffusing a not inconsiderable sum of money among the other settlers for boating and sundries.—NORFOLK ISLAND, *April 16, 1888.*

ISAAC ROBINSON,
Consul.

BAVARIAN EDUCATIONAL STATISTICS.

The following principal facts concerning education in the Kingdom of Bavaria for the years 1885–'86 are taken from the report of the bureau of statistics:

The number of German common or day schools in the Kingdom of Bavaria is 7,148, of which 309, or 4.3 per cent., are located in the cities, and 6,839, or 95.7 per cent., in the villages and the country; 7,089, or 99.2 per cent. are public, and 59, or .8 per cent., are private schools; 5,042, or 70.05 per cent., are Roman Catholic; 1,883, or 24.4 per cent., are Protestant; 129, or 1.8 per cent., are of mixed religions, and 94, or 1.3 per cent., are Jewish.

Of the above schools 6,255, or 87.5 per cent., are attended by both boys and girls; 391, or 5.5 per cent., are for girls; 379, or 5.3 per cent., are for

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boys; and in 123, or 1.7 per cent., there are certain classes for both boys and girls. The all-day schools number 6,693, or 92.4 per cent.; 463, or 6.5 per cent., are half-day schools, and in 82, or 1.1 per cent., the hours vary from all-day to half-day.

There are 22,379 teachers employed, of whom 12,531 are regular, and 9,848 are extra or special teachers. Of the regular teachers, 10,915, or 87.1 per cent., are men, and 1,616, or 12.9 per cent., are women; of the special teachers, 6,086, or 61.8 per cent., are men, and 3,762, or 38.2 per cent., are women. Male teachers are divided according to religious profession into 11,785 Catholics, 5,030 Protestants, and 195 Jews, and the female teachers into 4,742 Catholics, 626 Protestants, and 10 Jews. Of the men 42 are priests or clergymen, and of the women 848 are nuns or members of sisterhoods.

The number of pupils in attendance upon schools in Bavaria is 855,463, of whom 419,098 are boys, and 436,365 are girls; 601,803 are Catholics, 246,064 are Protestants, 7,037 are Jews, and 559 are of other religious beliefs.

The absences from school reported were for a whole day 2,472,992, and for a half day 9,176,497, and of these 334,512, or 13.5 per cent., of the whole-day absences, and 1,915,254, or 20.9 per cent., of the half-day absences occurred in the city schools, and 2,138,480, or 86.5 per cent., of the whole-day absences, and 7,261,243, or 79.1 per cent., of the half-day absences occurred in country and village schools.

Instruction was given in 7,285 buildings, which contained 12,618 rooms. From 5,662 schools, or 79.2 per cent of the whole number, 1,793,571 marks was received for tuition. The deaths among the scholars during the school year numbered 3,358, of which 464, or 13.9 per cent., occurred among students in city schools, and 2,874, or 86.1 per cent., in country schools, 1,631 being boys and 1,707 girls.

The total number of holy-day* scholars amounts to 263,923, of whom 117,845 are boys and 146,078 are girls. Of the number 190,637 are Catholics, 71,733 are Protestants, 1,406 are Jews, and 147 belong to other denominations. There were 802 day scholars and 210 holy-day scholars who were excused for various reasons from any further attendance.

The total amount received for the support of the educational institutions of Bavaria was 14,687,593 marks, and the amount expended was 13,892,601 marks, the teachers receiving 8,139,977 marks, and 5,752,624 marks being expended upon school books, buildings and grounds, etc.

There are also 244 schools in Bavaria for technical education, 198 being devoted exclusively thereto, while 46 embraced classical studies in the course. To 155 of these schools parents are obliged by law to send their children. The number of scholars in these technical schools is 26,645, with 1,300 teachers, 56 of whom are wholly devoted to technical studies. The total expense is 378,870 marks.

* Holy-day scholars are those who have attended for a certain number of years the day schools and are by law still compelled to attend school so many hours every Sunday and every holy-day.

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There are 597 agricultural schools, with 11,539 pupils. Of these 12 are winter schools, with 453 students, the remaining 11,086 pupils attending the other agricultural schools. The number of teachers is 956, and the expenses amount to 138,617 marks.

In the province of educational institutions intermediate between the common day schools and the university there are in Bavaria 33 institutions for the study of humane learning, with 848 teachers and 14,120 scholars. The amount expended was 2,232,910 marks, of which 256,628 was received from students.

Among other educational institutions there are 54 Latin schools, with 469 teachers and 3,107 pupils; 4 polytechnic high schools, with 60 teachers and 444 pupils; 57 polytechnic schools, with 783 teachers and 8,633 pupils; 4 industrial schools, with 59 teachers and 126 pupils; 5 schools for teaching architecture and building, with 72 teachers and 763 pupils; 8 commercial schools, with 102 teachers and 1,163 pupils; 2 schools for instruction in art industries, with 41 teachers and 218 pupils; 44 training schools for teachers, with 254 instructors and 1,896 pupils; 19 training seminaries for teachers, with 230 instructors and 1,281 pupils; 13 music schools, with 99 teachers and 1,360 pupils; 118 colleges, with 1,560 teachers and 11,022 pupils; 21 schools for teaching manual work to women, with 93 teachers and 1,713 pupils; 3 training schools for teachers in women's work schools, with 22 teachers and 66 pupils; the agricultural college at Lichtenhof, with 12 teachers and 78 pupils; 4 agricultural district schools, with 38 teachers and 166 pupils; the central agricultural college at Weihemstephon, with 15 teachers and 71 pupils; the training school for gymnastic teachers in Munich; 26 schools for teaching some particular branch of learning or science, with 60 teachers and 3,243 pupils; and 3 private institutions, with 18 teachers and 52 pupils.

The number of students at the three universities during the winter term was 5,177, of whom 2,906 were at Munich, 1,424 at Wurzburg, and 847 at Erlangen; and for the summer term there were 5,410 students, 3,060 being at the Munich University, 1,442 at Wurzburg, and 908 at Erlangen. At the seven lyceums in Bavaria there were 728 students in the winter term, and 702 during the summer term; at the polytechnic institute in Munich there were 731 students during the winter term, and 657 for the summer term; at the artists' academy there were 449 students for the winter term, and 370 for the summer term; at the forestry school at Aschoffenburg there were 92 students during the whole year, and at the veterinary college in Munich there were 122 students during the winter term, and 99 during the summer term.

Out of 766 candidates for graduation in the three universities 586 were pronounced satisfactory; in the lyceums 262 presented themselves, and all were passed; at the polytechnic, 87 out of 99 were passed; at the forestry school, 64 out of 77 were passed, and in the veterinary school 20 out of 25 were passed as fit for graduation. — MUNICH, *May 18, 1888.*

EDWARD W. MEALEY,
Consul.

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PASSPORT REGULATIONS FOR ALSACE-LORRAINE.

I have to-day sent the following telegram:

BAYARD, *Secretary, Washington.*

From to-day foreigners entering Alsace-Lorraine from France require passports with *visá* of German embassy, Paris.

COLEMAN.

The decree upon which the foregoing telegram is based, and which is inclosed herewith in its official form, together with a translation, was promulgated by the Alsace-Lorraine authorities on the 22d ultimo, to take effect from to-day. Strenuous efforts have been made in the interval in various quarters to secure the repeal or modification of this measure, but in vain.

In calling yesterday at the foreign office to secure a copy of the official publication of the decree I was informed that it would certainly be upheld, but that the *visá* of the German embassy at Paris would be furnished at once and without question to all foreigners other than Frenchmen applying for the same, upon the payment of a fee of 10 marks. To Frenchmen the *visá* would not be given until after correspondence between the German embassy and the Alsace-Lorraine authorities.

This information, thus officially authenticated, I at once conveyed to our legation at Paris.

* * * * * * * *

BERLIN, *June 1, 1888.*

CHAPMAN COLEMAN,
Secretary of Legation.

TRANSLATION OF THE DECREE.

[Central and District Gazette for Alsace-Lorraine.]

Upon the basis of the law of October 2, 1795 (10 Vendémiaire of the year IV), and of October 19, 1797 (28 Vendémiaire of the year VI), as well as of the ordinance of April 20, 1814, the following is hereby decreed:

I. From Thursday, May 31, 1888, all foreigners crossing the French frontier, regardless of the distinction of their journey being in the nature of a transit or for the purpose of sojourn in the country, must be in possession of a passport provided with the *visá* of the German embassy at Paris. The *visá* must not be more than a year old.

Cards showing the avocation of foreign commercial travelers (proclamation of the Imperial chancellor of October 31, 1883, Central Gazette for the German Empire, page 305) do not replace the necessary passport.

Foreigners not in possession of a regular passport are to be prevented from continuing their journey, and in case of necessity to be conducted across the frontier.

German subjects crossing the French frontier do not require a passport.

II. From the requirement of having a passport are excepted the inhabitants of the French frontier communities, in so far as they may be repairing for business purposes to a neighboring German frontier community, and satisfy the frontier police officials that such is the case.

STRASBURG, *May 22, 1888.*

Ministry for Alsace-Lorraine, department of the interior.

The Under Secretary of State:

(Signed) STUDT.

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TRANSLATION OF NEWSPAPER ARTICLE DISCUSSING THE DECREE.

[Norddeutsche Allgemeine Zeitung, May 29, 1888.]

An incorrect significance would be attributed to the German passport measures at the French frontier if they were regarded as reprisals on account of particular occurrences, such as those at Arricourt or at Belfort. Those and many other similar ones have no immediate significance in connection with the measures of the German Government, but have importance only indirectly as symptoms of the situation. The passport measures, like those adopted to strengthen our defensive power, have no relation to particular events, but constitute a result of our collective policy. German policy, and the administration of the Reichslande (Alsace-Lorraine) in particular, must necessarily aim to consolidate the re-acquisition of Alsace by vivifying and strengthening the relations of that country with Germany. A principal obstacle in the way of the solution of this task consists in the continuance of the social and economic relations with France which naturally existed when the re-union with Germany took place. The effect of this condition of affairs is essentially increased, and attains to international acuteness in consequence of the excitations and baitings resulting from anti-German sentiment, and the preparations for the war of revenge for the re-acquisition of Alsace by means of espionage and agitation among the inhabitants of the country through associations and all sorts of other devices. As a consequence of these incitations the hostile bearing of the French people towards us has not only remained undiminished during the last seventeen years, but has become more acute, as the occurrences at Belfort demonstrate. The hope that a French Government would ultimately find itself strong enough to oppose this course, which jeopardizes the peace of both nations, has not been verified. Even with peaceful intentions the French Government has heretofore found the means to strengthen itself in promoting rather than in soothing the national hatred. The feeling of the French population in the provinces remains continuously at a height of hatred of us which does not permit Germans to show themselves anywhere in France without danger of life and limb, and the initiative of a few gamins suffices to cause outbreaks of this dangerous feeling. Neither the reserve of German policy nor the accommodating spirit shown by it in great and small political questions has been able to produce a change in that feeling. In the wars of 1813–'15 France relatively sustained greater loss and was treated with greater violence than in that of 1870. Nevertheless, within a period of only ten years after the treaty of Paris in 1825, the French annals will be searched in vain for a trace of similar hatred on the part of France of her neighbors, of similar lust for revenge for lost battles such as those of Leipsic and Waterloo, as is manifested to-day in the columns of all French papers, and in the demeanor of the population of the provinces of France. The futility of the reserve and caution hitherto observed by Germany, with the attendant hopelessness of bringing about a change in French sentiment excites in Germany no warlike plans and feeling. We carry respect for the independence of our neighbors to the degree of complete toleration of even the most unjust hatred of us. We desire no war; *we desire only more remote relations* with France, and, as we are tied to our vicinage, we must content ourselves with becoming more reserved in our intercourse with France, and to restrict it more than heretofore on the frontier, where it is made use of to agitate the population of German Alsace. We wish that the French should be more moderate in their intercourse with Alsace, and shall feel no regret if France shall in consequence adopt measures tending in an analogous manner to restrict the visits to French territory of our German people. This course is free from enmity. We only employ permitted international means to promote the historic process of the re-Germanization of the German Imperial lands and the dissolution of their connection with France. The international frictions made possible and furthered by the heretofore existing intercourse of the French with Alsace would, in the long run, be more dangerous to the maintenance of peace than a sharper emphasizing of the frontier and its separating effect could be. We therefore believe that the Imperial Government is serving the interests of peace when it meets France in the endeavor to closely control frontier intercourse, and sets limits to its intimacy, thereby excluding as far as possible political frictions.

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RAILROADS IN ASIA MINOR.

As supplementary to my dispatch, No. 32, relative to the proposed railroads in Asia Minor, I transmit herewith a translation of the principal conditions promulgated by the imperial administration of public works upon which concessions will be granted. These apply to the first section of the proposed trunk-road, being that between Constantinople (Scutari) and Angora, a distance of about 300 miles. The conditions are but in outline, and are intended principally as a basis for negotiation between the Government and proposed concessionists. The Government proposes to guaranty the sum of 15,000 francs gross receipts per kilometer, the required amounts being secured upon the tithes of the districts traversed by the road. —SIVAS, *May 11, 1888.*

H. M. JEWETT,
Consul.

[TRANSLATION.]

The concession for the construction and working of the line from Ismidt to Angora, about 480 kilometers, will be granted upon the following principal conditions:

1. The duration of the concession shall be ninety-nine years.

2. The grantees will be authorized to form a joint stock company, provided that the company shall be Ottoman, and subject to the jurisdiction of Ottoman courts in all its operations.

3. All lands called *arizii miricihalié* (public lands) necessary for the construction of the road and its dependencies, and for grading and ballasting the same (*pour l'ouverture des carriers et ballastieres*), will be ceded gratuitously; land and property belonging to private owners to be expropriated by the grantees or the company in conformity with the law of expropriation.

4. All materials and supplies necessary for the first establishment of the line shall be exempt from the payment of customs duties, foreign and domestic.

5. The contracts for the concession and the bonds and obligations of the company shall be exempt from stamp duties.

6. For the purpose of securing the necessary sums to make up the amount of 15,000 francs gross receipts per kilometer of road built and operated, the following plan will be adopted in the farming of the tithes of the sandjaks of Ismidt, Ertogroul, Kutahia, and Angora, crossed by the line, a member of the administration of the public debt to be present at said farming of tithes, to wit: Securities are to be given by the tithe-farmers for the full value of the tithes, and are to be registered in the name of the treasuries of the administration of the public debt in the said several sandjaks. The full amount of the value of said tithes to be at once deposited in said treasuries, and the amounts which the Imperial Government promises and engages itself to pay to make up the amount of gross annual receipts, as above indicated, to be levied on the said value of the tithes, the balance to be remitted to the treasury.

7. The line now in operation between Haidar-Pacha and Ismidt (95 kilometers), of which the actual receipts are about 10,000 francs, and the works already constructed beyond Ismidt, shall be ceded to the company upon payment of an adequate amount.

TECHNICAL CONDITIONS.

The line shall have a gauge of 1.44 to 1.45 meters. In the normal condition of the road-bed the surface shall have a width of 6 meters *en couronne*, and the ballasting shall be one-half meter in thickness. All curves shall have a radius of not less than 300 meters, and the inclination of grades shall not exceed 2 centimeters in the meter.

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Should, however, on making the surveys, some exceptional difficulties be discovered, such modifications of the above technical conditions will be allowed as will not be incompatible with the regular working of the line at the minimum rate of 35 kilometers per hour, including stops.

All matters of detail, aside from the above principal and technical conditions, set forth in the printed specifications and conditions of contract, may be modified by mutual agreement, with due regard to the exigencies of the case.

TRADE IN THE STRAITS SETTLEMENTS.

The following table gives the values of the imports and exports at the three settlements in 1886 and 1887 respectively:

Settlements.	Imports.		Exports.	
	1886.	1887.	1886.	1887.
Singapore	$77,277,536	$92,119,736	$60,578,615	$75,066,330
Penang	41,194,292	46,369,873	40,212,507	42,289,573
Malacca	3,072,390	3,833,311	3,331,152	3,985,308
Total	121,544,218	142,322,920	104,122,274	121,341,211

It must be remembered that these trade returns are approximate only, as there is no custom-house in the colony.

The very large increase in the value of the imports and exports, amounting in the aggregate to $37,997,639, can not be attributed altogether to augmented trade, but is partly due to the improved system of obtaining returns of imports and exports introduced in June, 1886, under the provisions of Ordinance I of that year.

The entire value of the imports into Singapore shows an increase of over $14,000,000. The imports from the United Kingdom alone exhibit an increase of nearly $3,500,000, and the imports from British colonies show a similar increase, principally from Hong-Kong and British India. The value of the imports from the other settlements increased over $500,000. The imports from foreign countries give the large increase in value of almost $7,500,000, the countries that contribute most being, in their order, Japan, Netherlands India, Johor, the protected native states, and Java.

The exports from Singapore show the large increase in value of $14,500,000, In the exports to the United Kingdom there is an increase of over $5,000,000; in those to British colonies there is a decrease of about $1,728,000, chiefly in the exports to Hong-Kong and British Burmah; to foreign countries the exports exhibit an increase in value of over $6,750,000, chiefly to Siam, Netherlands India, the United States, and Germany. The exports to the other settlements give an increase of almost $800,000.

The export of tin shows a large increase. The market has been extraordinarily buoyant, and the value of the tin exports is greater than in 1886 by the sum of $8,250,000.

The trade with the protected native states continues to increase steadily, showing under all the heads together in 1887, an increase of over $1,000,000 as compared with 1886.

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CAMPHOR MONOPOLY IN FORMOSA.

I had the honor to report in my dispatch, No. 592, of March 19, that measures for the abolition of the camphor monopoly in Formosa were in satisfactory train. Subseqently the Tung-li Yamēn repudiated the construction placed on its alleged agreement by the foreign ministers. The Yamēn now insists that the monopoly in camphor shall remain in force as at present. By reference to dispatch No. 39, of June 15, 1869, of Mr. T. Ross Browne to the Secretary of State, and inclosure B therein you will see that certain rules governing the camphor trade were adopted March 17, 1869. Those rules were in the nature of an agreement between the Chinese Government and the foreign powers. Under the circumstances the foreign ministers have transmitted to the Yamēn a communication, of which a copy is appended to my dispatch No. 633, of April 27, 1888. The ministers therein insist that these rules are still in force, and inform the Yamēn that the consuls have been instructed to claim compensation for all injuries arising from any breach thereof.—PEKING, *April 27, 1888.*

CHARLES DENBY.

COST OF MANUFACTURING ALL-WOOL DRESS GOODS.

Few lines of manufacture are so complicated as woolens. We have all-wool goods and mixed goods; goods of cotton warp and all-wool weft; cotton warp, shoddy, and wool weft; goods of shoddy and wool, without cotton; goods made almost entirely of what the poor people aptly call "devil's dust," with just a scratching of wool to hold the shoddy from flying away, but passing under the pretentious name of woolens; all-wool goods, with cotton carded in the wool; heavy-weight and light-weight goods; goods with a labor-cost of three times the value of the wool, and goods where less than one-third of the value of the wool represents the labor-cost. Besides all these variations we have worsteds, which, although classed separately, are composed of the same raw material, but form a different class under which manufactured wool appears in the market. Comparisons on a broad line, under a general heading, as in our census under "woolens" or "worsteds," are therefore impossible, unless we could be sure that foreign census reports contained the same itemized columns and the classifications contained quantitatively and qualitatively the same goods and in like proportions—in itself an impossibility. The only method, then, would be to select special articles of wide and general use, manufactured in different countries from the same class of raw material, and base an inquiry thereon. This plan I have followed in this inquiry, and have selected as the first of a number of articles of wool manufactures all-wool dress goods on which to obtain the comparative cost of production. It would have been better to have obtained the cost and manufacturing conditions in Germany and France, as well as in America and England. The wider the range of comparison the more useful the deductions from the facts, whatever they may be. A comparison of American and English cost and methods of

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production in this line can, however, be supplemented later on. A comparison with a country whose working methods come the nearest to ours among European nations can not fail to be of interest. The class of goods referred to are known as

SACKINGS.

In America they are largely used for ladies' dress. They are made of carded wool, and are of plain flannel weave. They represent therefore flannel manufacturing in the different items of labor as well as sackings or ladies' cloth.

A. — The American goods.

The American mill, from which my samples are obtained, manufactures this class of goods exclusively, though in two or three qualities: All-wool sackings, on which my comparison, the subject of this report, is based, and a similar article called tricot (a tricot weave), with some cotton carded in. The cotton carded in is dyed when bought. All other dyeing and labor processes are done at the mill. Some of the yarn is also received from outside sources.

The proportion in which bought yarn stands to goods woven in the mill, and other information referring to the material, can be inferred from this extract from the mill account for the half-year: 163,614 pounds woven, 131,251 pounds carded, and 138,105 pounds spun. The mill runs 10 sets of woolen machinery, 3 cards to a set, 40 inches wide, "Bramwell automatic feeder," 40 strands of roving to each card; 3,720 spindles and 76 broad looms, 110 inches wide, two-yard wide weaving on each loom; so that on the narrower goods two widths are woven on one loom, which are then split. On plain work one weaver runs two looms, while on the fancy goods (tricots) only one loom is tended by one weaver. The looms run 75 picks to the minute.

1. *The wool.* — The mill uses mostly Ohio and Michigan X fleece, the prices of which stood in December last, the time of my visit, 35 cents. A shrinkage of 50 per cent. takes place from the wool in the scouring and manufacturing, which brings the cost of the wool in the cloth up to 70 cents a pound. In the six months from December 6, 1886, to May 28, 1887, for which my account runs, this mill scoured for carding 131,251 pounds.

2. *The carding.* — The preparatory work up to and including carding, which embraces scouring, required an outlay of $3,882, or 2.95 cents per pound of carded wool. This includes the expense of necessary supplies. In October of last year 20,894 pounds were carded at a cost of $287 for supplies in the preparatory processes, and $407 for labor, making a total of $694. The supplies, however, were too high, compared with other months, and a residue of $50 had to be deducted to reduce it to the general average of, say, $237 for supplies, equal to 1.14 cents per pound, and $407 for labor, equal to 1.95 cents per pound — total, 3.09 cents per pound; a slight increase over the half-yearly average, easily accounted for by the smaller number of pounds carded than the average for the half-yearly total above. Where week rates

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are paid, as in scouring and carding, the number of hands employed can not be changed to suit the changing quantities under operation; hence one week's labor-cost per unit, except where piece rates prevail, is never absolutely the same as another.

3. *The spinning.* — The spinning employs one overseer at $2.50 per day; six men at $1.75 each; six boys at $1 each; and to this must be added six girl spoolers at 75 cents each; making a total of $23.50 per day, or $141 per week.

In the month referred to 23,864 pounds were spun, at an outlay of $647 ($10 of which went for supplies only), or 2.70 cents per pound as the cost of spinning. In the half-year mentioned 138,105 pounds were spun at a cost of $3,932, or 2.85 cents per pound — for practical purposes, no material difference, though showing the variations already spoken of in the carding.

4. *The weaving.* — The dressing department employs four men, who average $1.80 per day, and the warping employs three young men at $1.45; making a total of $11.55 per day, equal to $69.30 per week, and for twenty-five weeks $1,732.50. In the half-year 163,614 pounds were woven, equal to 396,585 square yards, which is 1.06 cents per pound and 0.44 cent per square yard.

The weaving expense of this half-yearly product was $16,151, including the above preparatory process, and burling and mending. The latter employs six girls, who average $1 per day, or $6 per week; being equal to $900 for the half year. Besides these, four loom-fixers are employed at $1.75 per day, $42 per week, and $1,050 for the half year; one overseer at $78 per month, or $468 for the half year; completing the additional labor at $2,418; equal to 1.47 cents per pound, and 0.60 cent per square yard.

The total weaving wages paid for the period of six months under review were, as stated, $16,151 for the 163,614 pounds of miscellaneous dress goods, or 9.85 cents per pound, inclusive of all expense incidental to weaving.

In the month of October last 26,607 pounds were woven at an outlay of $2,750 for wages, including overseers, and $225 for supplies, which is 10.34 cents per pound for wages, and 0.84 cent per pound for supplies; making a total of 11.18 cents.

These differences in the two statements are due, as can be easily conjectured, to the different goods woven, where the greater or smaller quantity of the more or less expensive weaving done in one period, as against another, certainly gives a relatively different monthly account. The tricot goods, 36 inches in width, weigh 4.2 ounces, and are paid at the rate of $4 per cut of about 68 yards, average. Of these, two pieces are woven on one loom — one of 36 inches and one of 48 inches wide; consequently the 36 inches, or the square yard, stands at $1.72 per cut, or 2.53 cents per yard.

The sackings, or dress goods, the subject of this comparison, are 50 inches wide and weigh 6.1 ounces, which is equal to 4.4 ounces per square yard. In these goods two looms are handled by the weaver, each loom run-

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ning the same 50-inch goods, at the rate of $1.80 per cut, or 2.65 cents per running yard, equal to 1.91 cents per square yard. Tricot is therefore paid at the rate of 2.53 cents and the sacking at the rate of 1.91 cents on the square yard. Per pound, one stands at 9.64 and the other at 6.90 cents. A third quality, woven of the same plain weave as the sackings, but with a cotton warp, is 22 inches wide, and is run four widths on one loom. These four widths are also paid at the rate of $1.80 per cut of like length. If anything, these are somewhat heavier than the plain goods, as cotton is of greater specific weight than wool. But taking only the same ratio this gives per yard of 22 inches 0.66 cents, per square yard, 1.084 cents, and 3.93 cents per pound as the direct weaver's wages. To recapitulate:

	Per square yard.	Per pound.
Tricots	2.53	9.64
All-wool sackings	1.91	6.90
Twenty-two-inch cotton-warp dress goods	1.084	3.93

To this must be added a general charge of 0.85 cents per pound for supplies and materials, mostly in dressing, to complete the cost of weaving. Thus there are variations of nearly 150 per cent. in the square yard and pound, although in the mill account, where the product is aggregated in square yards and pounds, one average price would appear to cover all qualities alike—a necessary result, showing the fallacy of general averaging so freely indulged in in our statistics. The weaver in these latter goods turns also two looms. The average output in sackings is about 50 square yards a day per loom. The 50-inch sackings give 25 yards per loom, or 50 yards per two looms, or 300 yards per week, at the rate of 2.65 cents per yard, or $7.95 as weekly earnings for good average weavers.

5. *The dyeing.*—The dyeing, of course, is all piece dyeing. The 163,614 pounds of woven goods cost $3,098 for dyeing, including dye-stuffs, or 1.9 cents per pound. The wages account covers one head dyer at $3, and four men at $1.40 a day, in all $8.60, or per week $51.60. This is, per half-year of twenty-five weeks, $1,290, leaving $1,800 for dye-stuffs and other necssary supplies. Divided, the pound of dyed stuff stands, for labor, 0.8 cents; for dye-stuffs, etc., 1.1 cents; total, 1.9 cents.

The monthly account for October gives, wages for dyeing the 26,607 woven pounds, $202, and for supplies, $112. The previous month, while about the same wages were paid, $631 were paid for supplies and dye-stuffs. An average, of course, must be drawn, as supplies, dye-stuffs, etc., are not bought from hand to mouth to cover the exact requirements for the work under process. This average would give the same proportions as in the half-yearly account and stands here only for corroboration of the correctness of the items covering the dyeing cost per yard or per pound.

6. *The finishing.*—The finishing department covers all additional labor processes after the goods have left the dyer's hands. Measuring, papering, and packing are included. All these processes employ about eighteen hands

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at an average of $1.35 a day, or $8 a week, which gives $144 per week, and per half-year, $3,600 in wages. The actual account of the half-year gives $4,263 as finishing expense, which cover materials and supplies. The pound, therefore, costs an additional 2.6 cents for finishing.

7. *Additional charges.*—These we may classify under one collective heading. The mill charges the same on the yard or pound at least, and consequently this is for this inquiry the only basis which concerns us. The items are:

Expense in wool handling	$836
General expense, office, etc	10,106
Rent	2,884
Insurance	352
Taxes	1,009
Interest	3,461
Total	18,648

Per pound this represents 11.4 cents, per square yard 3.135 cents, and per 50-inch goods per yard 4.355 cents.

8. *Total cost.*—The total cost in Massachusetts per manufactured pound of goods as described, *i. e.*, all-wool sackings used for ladies' dress goods, is as follows:

		Cents.
1. Wool		70
2. Carding, including scouring		3.09
3. Spinning		2.85
4. Weaving, labor		
a. Dresssing and warping	1.06	
b. Weaving	6.90	9.62
c. Burling and mending, loom fixers and overseers' pay	1.66	
5. Supplies		.85
6. Dyeing		1.9
7. Finishing		2.6
8, Additional charges		11.4
Total cost per pound		102.31

The proprietor of the mill gave, in a general statement, the principal leading features underlying the working operations and the details of cost: The general average cost of manufacturing the goods which the mill produced outside of wool, but covering everything else, was 33 cents per pound. He had to leave then on other and pressing business, but gave me all the mill books to scrutinize, besides directing the book-keeper to assist me in every way possible and to give me every account and account-book which I might require to put me in possession of every detail. The computations in the above headings are from the extracts I have made of the account-books, and show how closely they correspond in the aggregate with the general cost statement given in the outset. The difference of 0.69 cent in the pound is to be traced to the difference in the weaving wages, as explained under the proper heading, as well as also to dyeing charges left out for cotton-dyeing, etc.,

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counted in the general statement, but which I omitted to take cognizance of, on account of the goods under comparison being all-wool goods. I make mention of this fact more to duly and gratefully acknowledge the large-minded liberality with which the manufacturers met my request, when personally applying for such minute and intimate information on what would seem the most private details of business and cost account.

B. — The English goods.

There are no concerns in England who would run their mills year in and year out, or a very large part of their looms even, on one class of goods like those we have in comparison here. After much inquiry, I found a mill which was doing quite a business in this line of goods. The mill works two departments, a worsted mill and a carded-wool mill. The mill runs eleven sets of cards. The cards are of the best and most improved pattern; the so-called Scotch cards, preparer, scribbler, and condenser. The condenser is divided into fifty-nine threads. Each set cost £600, but eleven people do the work now for which eighty were required in the old days before these automatic improvements were introduced. The card automatically weighs its own wool and registers the weight on a sort of clock-work attached to the card.

1. *The wool.* — The clothing mill used in one week the following wools: 12,500 pounds of grease wool, greasy Sydney wool, at 8*d.*, which loses 9 out of 16 pounds and yields 5,500 pounds of clean wool; and 6,000 pounds of washed Port Phillip, which costs 12*d.* to 13*d.* a pound and yields 4,687 pounds, total, 10,187 pounds of clean wool. The goods made by this mill are of a somewhat finer class and have a better face and higher finish than my sample of American goods. No labor items, however, constituting cost, are affected thereby, as the count of picks and number of yarn is the same — at most a difference in the wool and in the ultimate finishing expense. The goods under review are made of Cape or Sydney wool, for which they paid 6½*d.*, or 13 cents, per pound. This wool shrinks 50 per cent. in scouring, with an additional loss in manufacturing, and yields 6½ pounds of cloth to 16 pounds of grease wool. The wool would then stand 16*d.*, or 32 cents, per pound in the cloth.

2 *and* 3. *Carding and spinning.* — The above wool makes 8,500 pounds of yarn. The labor of the preparing part, consisting of sorting, packing, scouring, dyeing, carbonizing, washing off, dyeing again, willeying, mixing, oiling, and packing, which all precedes the carding and spinning, is included with the total spinning cost, and can not well be itemized. The total labor-cost, including scouring, milling, fulling, carding, and spinning, is 2*d.*, or 4 cents, per pound of clean wool in the yarn. The supplies, etc., and kindred matter in the manufacturing, up to the dyeing and finishing, are given as ¾*d.*, or 1½ cents, per pound.

4. *The weaving.* The mill runs 120 broad looms, with 1 weaver to each loom, 4 loom-fixers, 5 warpers, 2 beamers, 5 burlers and menders, and 2

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others form the additional staff. The labor expense for these auxiliaries in weaving per piece of 36 yards is taken as 10*d.* for this class of goods, or 0.28*d.*, or 0.56 cents, per yard—per pound 1.33 cents.

In weaving each operator, as said before, operates one loom only against two in America in this class of goods. The weekly average output of 6-4 sackings (6¾ ounces to the yard) is 105 yards. The rate of pay for weaving is 7*s.* 8*d.* per piece of 72 yards = 1.28*d.*, or 2.56 cents per yard, or 6.07 cents per pound.

The weaving wages per pound of finished cloth are nearly the same as in America. The running yard shows more difference. The American goods, of which are my samples, are 50 inches wide; the English are 54 inches wide. The 54-inch goods are, however, also largely manufactured in America, but are as a rule about an ounce heavier per 54-inch yard than this class. The English wages of a weaver in woolen mills, mostly girls, are from 12*s.* to 15*s.* a week—not one-half the American pay. That weaving cost to the manufacturer is the same is due to the greater working power and quickness of the American operatives who, no matter what their original nationality may be, soon learn to take up the quickness and sprightliness of their better-trained American associates. I have often been told by English manufacturers, when speaking of this phenomenon of small output, larger numbers of hands and similar disproportions in the two respective working worlds, that they knew it well. They say, and my informant in this line among the rest, that an English girl is satisfied if she earns her 12*s.*, or, if she is clever, 15*s.* a week, and does not exert herself to go beyond that. I have found, however, exceptions to the rule, and we find in England variations of an almost unlimited number from the most progressive to the most stagnating method.

5. *The dyeing.*—The dyeing is not done in the mill, but is given out to a dyeing establishment. The dyeing is charged by the piece without close regard to the number of yards contained in it. I find it generally much dearer than in woolen manufacturing in America.

But repeated inquiry corroborates the statement of my informant. Upon my request for going over the charge again he answered, "The price I have quoted for dyeing is under the mark, and not too high, as you seem to think." The cost per yard of 54-inch wide of these goods in assorted colors is 2*d.*, or 4 cents; per pound this would be over 9 cents, but we will set it down as 8 cents.

6. *The finishing.*—The finishing expense is 1*d.* or 2 cents a yard, or 4 cents per pound. The goods have a higher and better finish than the American goods, which have a dull and rough appearance. The English excell in beauty of finish. The goods have a glossy, brilliant look, which gives them a higher value though at an unappreciably higher cost.

7. *Manufacturing charges.*—The same charges as covered in the respective American number are covered by 2¼*d.* or 5½ cents per 54-inch yard, or 13 cents [per pound?]. This includes all expenses, interest, materials, taxes, etc., but no profit.

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To summarize, then, we have per pound of manufactured 6-4 dress-goods in England at 6¾ oz.:

		Cents.
The wool		32
Carding, including preparing the wool, scouring, and spinning	4	
Supplies	1½	
	5.50	
Weaving:		
a. and *c.* dressing, etc	1.33	
b. weaving	6.07	
	7.40	
Dyeing	8	
Finishing	4	
Charges	13	
	37.90	
Total		69.90

or in English money 34.95*d.* per pound. The yard at 6¾ oz. then costs 14.76*d.*, or 29.52 cents. The goods are sold at 1*s.* 6*d.*, or 36 cents a yard. Off this price a discount for cash of 2½ per cent., an extra yard in the piece and 1 inch of each yard is given (37 inches instead of 36) in Yorkshire (one meets with rather queer trade customs and trade regulations, the traditional development, so to speak, of the customs of the people, and hard to follow to their sources), in all about 7½ per cent. has to come off, leaving 33.30 cents—3.78 cents profit.

C.—Another English account.

To corroborate the items of B account I obtained another statement from another mill in Leeds. The goods are of the same make, but somewhat finer and a trifler heavier.

They use New South Wales greasy lambs pieces and locks of which the present price is 5½*d.* or 11 cents per pound. This wool in scouring yields 33⅓ per cent., and 72 pounds are required for producing a piece of 54-inch sackings of 42 yards length and weighing 7 ounces to the yard, or 18⅜ pounds of cloth in all; a shrinkage of nearly 75 per cent.

Cost per piece of 18⅜ pounds:

	£	*s.*	*d.*			Per pound.
1. Wool, 72 pounds at 5½*d.*	1	13	0	$8.01		43.6
2 and 3. Labor up to weaving		3	4	.80	4.35	
Supplies, machinery, coal, etc		9	10	2.36	12.8	
4. Weaving, labor		7	0	1.68	9.15	
Weaving machinery		5	0	1.20	6.5	
Milling and other sundries			10	.20	1.01	
Labor sundries		4	0	.096	5.2	
5. Dyeing		8	6	2.04	11.1	
6. Finishing (60 per cent. labor)		6	0	1.44	7.16	
						57.27
						100.87

The goods are sold at 2*s.* or 48 cents per yard of 54 inches, with the same deductions as in B.

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The manufacturer has calculated here the supplies, those counted separately in A and B exhibit and all charges contained in No. 7 in A and B, in with each separate manufacturing process, *i. e.* (1) up to weaving and (2) the woven goods, etc.; likewise the interest and discount in with the general charges. Let us see now how this compares with B account. Taking 7½ per cent. off leaves 93.80 cents, and if we allow 10½ per cent. profit as in B, gives 83.85 cents. Now, the wool costs 43.60; consequently 40.25 cents covers the manufacturers cost against 37.90 cents in statement B and 33 cents in America. I have only introduced this account C for corroboration of B. The labor cost is very little higher than of the other English goods; so are the finishing and dyeing expense. The account of B I have examined personally and obtained the items in more specified form. The account of C was mailed to me after I had left Leeds, and the close approximation of two accounts from different parties, unknown to each other as giving me the information, certainly is very valuable confirmation of general correctness. Mathematical accuracy can only be obtained where, as in America, one mill makes one class of goods only, and then only with mental reservations, as (see the weaving statement in Exhibit A) even here different kinds of goods, though of the same class, are turned out in the year's run. But if we come within a fraction of a cent for each manufacturing operation in all-wool dress goods to reliable information of comparative values, we have covered all that can be reasonably expected for the purpose of this inquiry.

To recapitulate, the net cost of manufacture in Massachusetts and Leeds would be as follows:

Elements of cost.	Massachusetts.			Leeds.		
	Labor.	Incidental supplies.	Total.	Labor.	Incidental supplies.	Total.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Wool in 1 pound of goods, as described.	.....	.....	70	.....	.....	32
Scouring, carding, and spinning	4.80	1.14	5.90	4	1.50	5.50
Weaving, etc	9.62	.85	10.47	7.40	.....	7.40
Dyeing	.8	1.1	1.9	.....	.....	8
Fulling, finishing, etc	2.6	.....	2.6	.....	.....	4
Charges, etc	.....	.....	11.4	.....	.....	13
Total	.....	.....	102.31	.....	.....	69.90

The manufacturing cost is 33 cents in America, against 38 cents in England, 5 cents less in America; but the wool costs 38 cents more in America, in part on account of the wool duties. In other words, if we had the wool at the same cost of the English, we could produce at 64.31 cents what it costs in England 69.90 cents to produce. Our wools, of course, sell at as much higher rates over foreign wools than the duty and charges amount to. The cheaper the foreign wools the greater the disproportion between our price and the foreign wool price. The wools used in England—cheap colonial clothing wool—though very short, are admirably adapted to that class of goods. They give a much handsomer face, and have

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a luster and life which ours seldom show. Most of them are even of smaller shrinkage than ours of corresponding nature.* Some of them, however, as the wools used by the manufacture C, are absolutely prohibited. There the wool costs 11 cents in the grease, but the manufacturer importing the wool has to pay a fine at the custom-house of 10 cents, not alone for the wool he uses, but 10 cents for each pound of grease and dirt, which he has to import along with the wool, and is lost in the scouring; consequently 4 pounds of wool, as in Exhibit C, are required to produce 1 pound of cloth 4x10, or 40 cents on 43.6 cents worth of wool. (A wool of this sort would cost the American manufacturer fully 11½ cents more per pound of greasy wool, as not alone the duty, but also the extra freight and charges, brokerage commissions, etc., have to be counted; so that the 44 cents in the 4 pounds required for a pound of cloth would cost him 90 cents, or 105 per cent., more than the English manufacturer has to pay.) Our custom-house statistics only show the rates paid on what is imported, and never on what is excluded by prohibitive duties. The excluded materials are those which make the success or failure of manufacturing. The excluded materials, on the contrary, however, always find a way into the United States in the form of manufactured goods.

Items 2, 3, and 4 in the comparison need no further explanation. Sufficient has been said in the separate parts. The dyeing is done in America in most mills by the manufacturers; in England, by separate dye-houses. In America large quantities of similar goods, and frequently of one color, are dyed in a day's work; in England large and small quantities of dissimilar goods are sent to the dye-house from a large number of firms. A large woolen mill in Massachusetts, dyeing in the wool only, gave me as the daily average quantity of indigo-blue dyeing, 6,500 to 7,000 pounds of wool. For this they employ from forty-five to fifty men at $1.15 a day. Taking fifty, the larger number, they would pay $57.50, and with the head dyer say, in round numbers, $60 a day. These men, however, do the scouring likewise of the same quantity of wool. The dyeing and scouring therefore costs in labor only six-sevenths of a cent per pound. The mill is known for paying smaller wages than is general. On the other hand, this statement shows how much saving can be effected when operations are conducted on so large a scale as in this mill and with no changes in the dye, etc.

Whatever the causes, whatever the advantages or disadvantages in regard to the ultimate result in the character, quality, or appearance of the goods, one thing is certain, that so far as the cheapening of price is concerned our manufacturing system seems to have the honors. I only allude to this phase now inferentially. I reserve to myself the task, in summing up the results of my inquiries into the manufacturing cost and working methods of different nations, to return to and more fully treat this very important subject in the economy of production. My present aim only is to report the facts. — TUNSTALL, ENGLAND, *June 5, 1888.*

J. SCHOENHOF,
Consul.

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* See my report in CONSULAR REPORTS No. 69, October, 1886.

RUSSIAN GRAIN IN GERMANY.

At a time when measures are being discussed for putting difficulties in the way of Russian wheat and other grain it may be of interest to know how large the interests are which are involved.

Owing to a good harvest and the completion of many important lines of Russian railroad the export from the Russian Empire for the year 1887 shows considerable increase. The principal part of the increase over the preceding year is set down to the time immediately succeeding the advance of import duties. Of Russian grain Germany imported:

Year.	Wheat.	Rye.	Barley.	Oats.
	Tons.	*Tons.*	*Tons.*	*Tons.*
1887	250,986.4	416,164.1	75,932.5	121,144.4
1886	141,687.7	827,961.5	44,661.7	40,258.6
Increase in 1887	109,293.7	88,202.6	31,320.8	80,885.8

NOTE.—A ton, as above used, equals 2,204.62 pounds.

The total export from Russia, according to Russian figures, was:

Year.	Wheat.	Rye.	Barley.	Oats.
	Pood.	*Pood.*	*Pood.*	*Pood.*
1887	130,619	77,553	58,541	61,016
1886	86,656	65,656	41,258	34,151
Increase in 1887	43,963	12,530	17,283	26,365

NOTE.—A pood equals 36.1139 pounds.

Reduced to percentages, 11.73 per cent. of the wheat, 32.76 per cent. of the rye, 7.92 per cent. of the barley, and 12.12 per cent. of the oats exported from Russia were imported into Germany. Looked at as percentages they all, with the exception of rye, seem very small. A flooding of Germany with Russian grain is hardly probable, the more so when we think of last year's increase of duties. Grain centers are taking alarm at the threat to put an increase of 50 per cent. on all Russian grain imports.

During 1887 Mannheim imported:

Cereals.	Quantities.	Duties.
	Kilograms.	*Marks.*
Wheat	178,559,196	5,356,775.85
Rye	24,219,653	726,589.55
Barley	146,679,905	2,200,198.55
Oats	11,064,213	.....
Maize	15,557,750	155,577.50

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Movement of grain by river and rail in Mannheim for five years ending December 31, 1887.

Year.	By boat.		By train.		Total.
	Came.	Went.	Came.	Went.	
Wheat.					
1887	2,270,437	414	28,540	1,921,050	4,220,441
1886	2,158,158	2,467	40,920	1,808,980	4,010,825
1885	1,787,573	9,884	69,040	1,864,140	3,730,637
1884	2,779,153	12,730	111,540	2,724,220	5,627,643
1883	2,253,942	20,999	52,200	1,906,920	4,234,061
Rye.					
1887	295,002	3,728	3,350	222,180	524,260
1886	188,730	6,011	2,830	119,050	316,621
1885	220,550	642	4,280	128,450	353,922
1884	88,233	1,158	4,620	84,080	178,091
1883	74,811	3,349	1,920	57,160	137,240
Barley.					
1887	75,397	42,440	43,130	73,660	233,627
1886	51,286	27,621	55,290	25,200	259,367
1885	29,104	22,132	44,290	29,800	125,326
1884	14,643	26,376	46,480	16,780	104,279
1883	11,333	71,262	88,580	12,040	483,215
Oats.					
1887	158,329	1,110	24,070	121,830	305,339
1886	28,212	28,425	37,560	9,299	103,487
1885	29,389	2,155	36,600	24,550	92,694
1884	18,228	700	23,780	22,050	64,758
1883	3,034	5,039	41,960	20,720	70,753
Maize.					
1887	268,821	5,080	.....	.....	273,901
1886	220,029	6,581	.....	.....	226,610
1885	195,492	1,405	.....	.....	196,897
1884	120,502	1,287	.....	.....	121,789
1883	115,679	394	.....	.....	116,073

The above figures are so many meter centners, or 220 pounds.—MANNHEIM, *May 27, 1888.*

J. C. MONAGHAN,
Consul.

PETROLEUM IN EGYPT.

The Egyptian petroleum explorations on the Red Sea coast were some time ago suspended. The Government spent in the neighborhood of $750,000 in these explorations, and has nothing to show in return for this very considerable outlay except worn machinery and a few empty holes in the rock at Zeite and Djemseh. The first effort to find petroleum was made in the latter part of 1885 by boring on a small scale at Zeite. A little oil was then found, but that has been the last as well as the first. In the spring of 1886 a geological survey of the region about Zeite and Djemseh and back from the coast was ordered. It would be more appropriate to denominate this survey a petroleum search, but a fatal error was to intrust such search to a man who

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knew nothing about searching for petroleum. He had no familiarity with petroleum regions, but his report convinced the uninitiated Egyptian officials that the whole earth thereabouts, including the long mountain line between the Red Sea and the Nile valley, contained inexhaustible stores of petroleum. It was found in even the paving rock of Cairo, taken from the hills overhanging the city. The imaginative explorer found the smell of oil everywhere, and the wildest desire possessed the Egyptian official mind to profit at the earliest day from the vast store of wealth with which a wide region of Egypt was saturated. Expert borers were employed and great quantities of machinery were purchased, and under a great strain the works were erected and the boring was begun in the latter part of 1886. Watching closely the progress of investigation and operation, I was never led to believe there would be any outcome from Egyptian petroleum works, and I so reported to the Department of State, giving in detail, however, all movements and developments in the process of exploration, discovery, and operation. As already stated, the Egyptian petroleum explorations and works are at an end, because no oil could be found to keep them going. Expensive machinery now lies idle in the humid air of the Red Sea coast, where in disuse it will soon become worthless. It can be used for no other purpose. —CAIRO, EGYPT, *May 29, 1888.*

JOHN CARDWELL,
Agent and Consul-General.

EMIGRATION FROM NORWAY IN 1887.

The Norwegian statistical bureau has published official statistics of the aggregate emigration from this country in 1887, from which I copy the following details:

Sex of the emigrants.

Where from.	Men.	Women.	Total.
From Norway rural districts	7,880	4,555	12,435
From Norway towns	4,834	3,472	8,306
Total from Norway in 1887	12,714	8,027	20,741
Whole number from Norway in—			
1886	8,611	6,547	15,158
1885	7,272	6,709	13,981
1884	8,044	6,732	14,776
1883	12,358	9,809	22,167
1882	16,538	12,266	28,804
1881	14,910	11,066	25,976

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Ages of the emigrants.

Where from.	Under 15.	15–30.	30–65.	Over 65.	Unknown.
From Norway rural districts	2,038	7,880	2,414	100	3
From Norway towns	1,595	4,440	2,206	59	6
Total from Norway in 1887	3,633	12,320	4,620	159	9
Whole number from Norway in —					
1886	3,107	8,462	3,434	146	9
1885	3,477	7,296	3,089	117	2
1884	3,618	7,736	3,282	133	7
1883	5,798	11,019	5,169	176	5
1882	7,182	14,341	7,070	202	9
1881	6,637	12,716	6,412	201	10

Nationality of emigrants from Norway.

Year.	Norwegian.	Swedes.	Others.	Total.
1887	20,741	4,845	136	25,722
1886	15,158	2,103	63	17,324
1885	13,981	1,215	31	15,227
1884	14,776	1,356	53	16,185
1883	22,167	2,126	154	24,447
1882	28,804	3,910	176	32,891
1861	25,976	2,647	96	28,719

Emigration from different Norwegian ports from 1881 to 1887.

Port.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
Christiania	15,944	18,452	14,275	9,429	8,560	9,416	14,129
Christiansand	1,182	1,711	1,360	1,101	1,006	1,701	2,933
Stavanger	1,901	2,229	1,751	1,204	1,512	1,656	2,147
Bergen	2,940	3,017	2,488	1,828	1,770	1,816	1,725
Drontheim	5,968	6,652	4,081	2,244	1,903	2,083	3,375
Other ports	785	830	492	379	476	652	1,413

From the above figures it will be seen that the number of emigrants increased considerably in 1887, especially male emigrants, the number being 12,714, against 8,611 in 1886. The number of emigrants in their strongest period of life, viz, from fifteen to thirty years, also shows a large increase, being 12,320, against 8,462 in 1886. It is noticeable that Swedish emigrants are shipping in increasing numbers from Norwegian ports, the number being 4,845 in 1887, against 2,103 in 1886.

The emigration to the United States has up to this date been exceedingly large, and will show a much higher figure than in 1887. Here, as well as in Sweden, the country is incessantly drained of workmen in all branches of industry, and in the rural districts it becomes more and more difficult to find cheap and efficient hands. — CHRISTIANIA, *May 30, 1888.*

GERHARD GADE,
Consul.

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EFFORTS TO INCREASE DUTCH FOREIGN TRADE.

I transmit herewith a translated copy of a circular issued by a committee composed of a large number of the most ptominent merchants, manufacturers, and others at Amsterdam, Rotterdam, and other places in this country, and which said committee has formed an association named "The Foreign Country" (Het Buitenland).

What caused the action of the organizers of this association, its aims and purposes, and what is desired and expected to be achieved by and from the establishment and of the institution, is all clearly set forth in the inclosure herewith, wherefore I dispense with explaining or describing it in this dispatch.

The high character and great influence of the parties who initiate and stand at the head of the movement give great promise that the association will receive a goodly amount of general support, and that it will be exceedingly apt to prove successful and a benefit to the country.

I invite your attention to the contents of the inclosed circular, as they relate to a matter which, in my opinion, is not only novel and interesting, but which may, perhaps, deserve to be regarded as of some importance, inasmuch as following the example by the formation of similar associations in the United States may be found to be paramountly desirable and recommendable, and, therefore, it may be superfluous that I remark or suggest that the information conveyed by the above and in the accompanying circular be in some form brought to the notice of our own public. —AMSTERDAM, *June 7, 1888.*

D. ECKSTEIN,
Consul.

AMSTERDAM, ROTTERDAM, } *May, 1888.*

GENTLEMEN: Every day the necessity becomes more apparent for our country to make earnest endeavors towards sustaining or renewing the struggle against the keen competition from abroad in commercial matters in all those countries which are likely to be closed to us in a short time; and above all towards an extension of our traffic to those great emporiums of commerce in India, China, and other extra European countries where Dutch commerce and industry were scarcely represented till now. Where our neighbors seek and find fresh fields of action we can not remain behind if we will not suffer ourselves to be gradually shut out from international traffic altogether.

There is ample proof that the productions of our home industry are at least equal to those of other countries, and that to be assured of a ready sale they require only to be made known in a judicious manner.

The transatlantic trade of the Netherlands remains limited chiefly to our own colonies, and is growing into rather a transit than an import and export trade, which is of little advantage to our national industry.

This one-sidedness of our commercial traffic against the increasing extension of the same in England and Germany is chiefly due to the fact that both these countries possess in the principal markets of the world commercial establishments entertaining direct intercourse

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with the mother country. By this means trade and navigation with the English and Germans are constantly stimulated and their industry kept informed by countrymen about the wants and requirements of other nations, and obtains fresh opportunities for the sale of its productions.

Dutch commercial houses abroad are few in number, and though many young Dutchmen are willing to establish themselves abroad, they miss the opportunity to obtain there in a subaltern position at first the necessary experience, because they do not find everywhere, like the Englishman and German, commercial houses where they are sure to find employment.

We therefore deem it highly desirable for the trade and industry of our country that young Dutchmen should go abroad on a more extensive scale than hitherto, not only with a view to augmenting their knowledge of commercial and industrial matters, but also to get acquainted with the mode of transacting business in various places, with the customers in the East, with the bazars; in short, to feel themselves at home in foreign parts, not only in business but also in ordinary life, so that in a few years hence the possibility is opened and even the way cleared for them to establish Dutch commercial houses in the principal international markets, where there are none now. Once in possession of the necessary capacities, together with professional and local knowledge, finding an opportunity of establishing business on their own account, or being taken into partnership by existing firms, the prosperity of Dutch commerce will be greatly promoted.

To that effect the undersigned have created an association — "The Foreign Country" (Het Bintenland) — which has obtained the royal sanction to its articles of agreement and which intends to procure through personal influence of the members and by the influence of our consuls appointments with commercial counting-houses in transatlantic places for such young men as it shall recommend.

In the beginning it will probably be necessary to support these young men financially:

1. By the payment of the whole or part of their traveling expenses.

2. By allowing them a subsidy for a moderate time to enable them to live in their new home if the salary should at first be insufficient to subsist upon; or, in case they have to begin as volunteers, till their ability has been proved and is paid accordingly.

As a rule this financial support would be given on condition that those young men morally obligate themselves to return the whole or a part of the advanced money to the association as soon as they are in a position to do so without any serious difficulty. Any money so returned will be used in behalf of other young men in like circumstances.

The necessity of financial support will be felt chiefly at first, for as soon as a recommendation from the association will have become a valued passport, it may be expected that rather well-to-do people will apply.

Knowledge of business, of commodities, and of men, can not be got at school nor exclusively behind the desk; by personal experience only is to be obtained that practical skill, the art of availing one's self of circumstances, and that promptitude in making a decision which a business man must possess to succeed; and it is consequently for the benefit of Dutch trade and industry that the public is asked to support our endeavors.

To attain this end ample means are necessary, and the manner in which we hope to obtain them is laid down in the articles of the association, of which we annex a copy.

Immediately after receipt of the answers to this circular we will arrange a meeting for the election of the board.

We hope you will kindly give us your support by joining the association, and remain truly,

THE PROVISIONAL COMMITTEE.

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The following table shows the proportion of imports from Germany, France, and the United States, respectively, to the total imports in the following groups of countries in 1875–'77 and 1884–'85 compared:

Countries.	A.—Germany.		B.—France.		C.—United States.	
	Average of 1875–'77.	Average of 1884–'85.	Average of 1875–'77.	Average of 1884–'85.	Average of 1875–'77.	Average of 1884–'85.
European countries	15	17	12	10	5	6
Egypt	.....	1	19	14	1	1
American countries, United States, Argentine Republic, Uruguay, and Chili.	7	11	12	11	6	7
China	.....	.....	.....	.....	1	4
Japan	4	7	10	5	7	9
British possessions*	0.2	0.5	1.1	1.2	9	8.3

*The amounts of the imports in C varies slightly from what is stated in A and B, owing to one or two slight variations in the British possessions included.

THE FOREIGN TRADE OF JAPAN.

I transmit herewith the "Annual Return of the Foreign Trade of the Empire of Japan for the year 1887," published by the Japanese bureau of customs. From this voluminous report it will be seen that the value of the commodities exported from Japan for the year named amounted, in Japanese silver, to 52,409,223, and the imports to 51,699,769 yen, which is a total foreign trade of 104,108,792 yen, and an excess of exports over imports of 709,453 yen. In this connection I call attention to the note on page 1 of the inclosed report, in explanation of the conversion of some of the values expressed in gold into silver yen. The figures, as above given, for 1887 show an increase of exports over 1886 of 3,538,752 yen, and an increased import of 14,401,026 yen, which is an increased foreign trade over the previous year of 17,939,778 yen.

Table of exports from Japan to some of the principal commercial countries.

Country.	1886.	1887.	Increase.	Decrease.
	Yen.	*Yen.*	*Yen.*	*Yen.*
United States	19,988,216	21,529,266	1,541,050	.....
France	9,632,902	9,528,396	.....	104,506
China	9,594,907	10,970,043	1,375,136	.....
Great Britain	4,195,355	3,478,729	.....	710,626
Germany	864,458	921,723	57,265	.....
Corea	829,316	551,908	.....	277,409
East Indies and Siam	649,143	453,472	.....	195,671
Australia	469,914	535,082	95,168	.....
Canada and British America	.....	714,174	.....	.....

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The foregoing table, compiled from the report, shows the value of the exports from Japan to some of the principal commercial countries. The values in this table, as well as all values in this dispatch, are expressed in Japanese silver yen, the value of which is 75.3 in United States money: *

Table of imports into Japan from some of the principal commercial countries.

Country.	1886.	1887.	Increase.	Decrease.
	Yen.	*Yen.*	*Yen.*	*Yen.*
Great Britain	12,703,248	18,970,544	6,267,296	.....
China	7,123,851	7,985,820	861,969	.....
East Indies and Siam	3,561,319	5,291,614	1,730,295	.....
United States	3,358,986	3,283,096	.....	75,890
France	1,330,913	2,313,345	982,432	.....
Germany	2,313,659	4,010,915	1,697,256	.....
Corea	563,447	1,010,374	446,927	.....
Australia	80,465	32,265	48,200	.....

Table showing total trade of Japan (exports and imports combined) with some of the principal commercial countries.

Country.	1886.	1887.	Increase.
	Yen.	*Yen.*	*Yen.*
United States	23,347,202	24,812,362	1,465,160
France	10,963,815	11,841,741	877,926
China	16,718,758	18,955,863	2,237,105
Great Britain	16,898,603	22,449,273	5,550,670
Germany	3,178,117	4,932,638	1,754,521
Corea	1,392,763	1,562,281	169,518
East Indies and Siam	4,210,462	5,745,086	1,534,624
Australia	550,379	567,347	16,968

The following list shows the principal articles exported from Japan for the year 1887. In the list the figures are given in round numbers:

	Yen.		Yen.
Camphor	1,130,000	Waste silk	807,000
Ginseng	819,000	Cocoons	262,000
Sulphur	136,000	Floss silk	158,000
Cuttle-fish	1,051,000	Hides and skins (undressed)	151,000
Beche de mer	250,000	Green and black tea	7,349,000
Kauten	337,000	Tea dust	156,000
Mushrooms	442,000	Cotton piece goods	169,000
Rice	2,255,000	Silk piece goods	135,000
Sea-weed	594,000	Silk handkerchiefs	1,146,000
Shell-fish	410,000	Coal (including that for ships' use)	2,337,804
Shrimps	156,000	Timber, wood, and planks	183,000
Wheat	122,000	Fans	202,000
Antimony	163,000	Matches	941,000
Copper	2,031,000	Screens	276,000
Rags	253,000	Straw plaits and straw ware	361,000
Vegetable wax	326,000	Bamboo ware	212,000
Raw silk	19,280,000	Bronze ware	228,000
Noshi silk	1,264,000	Lacquered ware	630,000
Tama silk	112,000	Porcelain and earthen ware	1,311,000

*The Japanese silver yen was valued by the Treasury Department of the United States at 78.4 cents on January 1, 1887, and at 75.5 cents on January 1, 1888.

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The following is a list of the principal articles of import into Japan for the year 1887:

	Yen.		Yen.
Clocks	173,000	White sugar	3,296,000
Spinning machinery	125,000	Raw cotton	711,000
Steam engines and boilers	139,000	Cotton on the seeds	202,000
Watches	368,000	Cotton yarns	8,235,000
Flour	96,000	Chintzes, or printed cotton	318,000
Books	206,000	Cotton drills	132,000
Printing-paper	115,000	Cotton satins	198,000
Hats, caps, etc	251,000	Cotton velvet	324,000
Gunpowder	263,000	Gray shirtings	1,169,000
Aniline dyes	266,000	White shirtings	266,000
Extract of logwood	132,000	Dyed shirtings	155,000
Window-glass	116,000	T-cloths	191,000
Beans, pease, and pulse	425,000	Turkey-reds	358,000
Rice	129,000	Wool	189,000
Hides (buffalo and cow)	392,000	Woolen yarn	255,000
Kerosene oil	1,881,000	Blankets	581,000
Sole-leather	260,000	Italian cloths	921,600
Other kinds of leather	531,000	Flannels	323,000
Pig-iron	118,000	Mousseline de laine	1,126,000
Bar and rod iron	447,000	Woolen cloths	1,402,000
Iron rails	653,000	Woolen cloths (in part wool)	501,000
Plate and sheet iron	218,000	Satin, silk, and cotton mixtures	437,000
Iron nails	393,000	Canvas	193,000
Iron pipes and tubes	334,000	Cotton handkerchiefs	151,000
Steel	143,000	Beer and ale	368,000
Lead	108,000	Wine	114,000
Tea lead	136,000	Oil-cake	229,000
Zinc	138,000	Portland cement	109,000
Brown sugar	2,418,000	Locomotive engines	79,000

The principal exports to the United States during 1887 were as follows:

	Yen.		Yen.
Camphor	387,000	Silk handkerchiefs	816,000
Sulphur	112,000	Fans	97,000
Rice	98,000	Screens	46,000
Rags	253,000	Straw plaits	320,000
Raw silk	11,165,000	Bamboo ware	102,000
Cocoons	138,000	Bronze ware	41,000
Floss silk	68,000	Lacquered ware	64,000
Green and black tea	6,772,000	Porcelain ware	295,000
Tea dust	134,000		

The principal imports from the United States for the year 1887 were as follows:

	Yen.		Yen.
Clocks	160,000	Beer, ale, and wine	39,000
Watches	27,000	Iron and iron manufactures	27,000
Flour	94,000	Mercury	23,000
Books	114,000	Pumps	25,000
Sole-leather	113,000	Engines and boilers	20,000
Other leather	79,000	Machinery (including mining, printing, paper-making, sewing, spinning, etc.)	60,000
Condensed milk	55,000	Provisions	75,000
Cigars, cigarettes, and tobacco	70,000		

By comparing the figures in the foregoing table with those of the table of imports from the United States in 1886 it will be found that the following articles show an increased value in import for 1887 over 1886:

	Yen.		Yen.
Leather	79,000	Watches	9,501
Clocks	79,388	Iron and iron manufactures	11,000
Books	61,335	Provisions	14,000
Tobacco and cigarettes	41,000		

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Many other articles imported into Japan from the United States show increases by smaller amounts; and, in fact, nearly all of the staple articles from the United States have either increased or held their own. The decrease, however, on kerosene alone (our principal export to Japan) was 487,000 yen; lead-pencils fell off 26,000 yen, and flour 2,000 yen. This gross falling off of more than 500,000 yen was made up to the extent of 440,000 yen by the increase in other commodities mentioned above, thus leaving a net decrease in Japan's imports for the year 1887, as compared with 1886, of 75,000 yen, as shown in one of the foregoing tables.

As much has been recently said of the growth of German trade with Japan it is interesting to ascertain in what articles the increase of more than 1,500,000 yen of imports from Germany during 1887 occurred. The principal items, in round numbers, are as follows:

	Yen.		Yen.
Gunpowder	128,000	Woolen yarn, from 32,000 to	119,000
Aniline dyes	49,000	Italian cloths, from 16,000 to	51,000
Machinery, and parts of	113,000	Woolen cloths, from 206,000 to	448,000
Arms and munitions of war	159,000	Part woolen cloths, from 9,000 to	68,000
Printing-paper	33,000	Satin, silk, and cotton mixtures, from 67,000 to	206,000
Other paper	30,000	Chintzes, from 13,000 to	30,000
Beer and ale (1886)	93,000	Zinc from, 21,000 to	46,000
Beer and ale (1887)	248,000	Iron rails, from 165,000 to	311,000
Wine, liquors, etc., increased from 17,000 to.	38,000	Iron nails, from 128,000 to	171,000
Precious stones and jewelry, from 666 to	10,000	Leather, from 10,000 to	34,000
Portland cement, from 10,000 to	27,000		

In fact, nearly every article imported from Germany has been imported in 1887 to a larger extent than heretofore. Some of the articles imported from Great Britain in greater quantities in 1887 than in 1886 are given below:

	Yen.		Yen.
Arms and munitions of war; increase	320,000	Cotton yarn, from 3,116,000 to	3,956,000
Gray shirtings, from 848,000 to	1,100,000	Chintzes or printed goods, from 133,000 to	260,000
White shirtings, from 115,000 to	258,000	Cotton drills, from 74,000 to	127,000
Spinning machinery, from 3,000 to	116,000	Cotton satins, from 47,000 to	193,000
Steam-engines and boilers, from 51,000 to	112,000	T-cloths, from 114,000 to	185,000
Hats, caps, etc., from 113,000 to	225,000	Turkey reds, from 278,000 to	345,000
Paper of all kinds, from 116,000 to	160,000	Woolen yarns, from 27,000 to	109,000
Medicines and chemicals, from 498,000 to.	819,000	Blankets, from 343,000 to	557,000
Glass, all kinds, from 28,000 to	83,000	Italian cloths, from 834,000 to	870,000
Iron rails, from 277,000 to	341,000	Woolen cloths, from 378,000 to	893,000
Bar and rod iron, from 338,000 to	408,000	Cloths part wool, from 187,000 to	427,000
Plate and sheet-iron, from 170,000 to	200,000	Canvas, from 67,000 to	197,000
Iron pipes, from 32,000 to	329,000	Handkerchiefs, from 39,000 to	109,000
Lead, from 130,000 to	228,000		

An increase of exports from Japan to the United States from 19,988,216 yen in 1886 to 21,529,266 in 1887, a gain of 1,541,050 yen, and a decrease of United States exports to Japan for the corresponding period from 3,358,986 yen in 1886 to 3,283,096 in 1887, a loss of 75,090 yen, took place. This falling off in United States exports to Japan, which is inconsiderable when compared with the volume of our trade, is accounted for almost solely by the decline in the export of the one item of kerosene oil for 1887. In nearly all other exports to Japan from the United States in 1887 the increase in value has been considerable, being in all over 400,000 yen, while

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the decrease in kerosene alone, as already set forth in the foregoing analysis of Japan's customs returns has been 487,000. Leading American merchants resident in this Empire account for the exceptionally large export of kerosene in 1886 on the ground that the international treaty conference for the revision of the Japanese treaties was then in session at Tokio, and the common report, amounting to an open secret in mercantile circles, having gained currency that a higher import duty than that at present imposed on kerosene would be provided for in the new treaties, it naturally followed that extraordinarily increased shipments of this product from the United States to this market were the results. This movement was of course intended to meet the anticipated increase of duty from 5 per cent. ad valorem to such higher rate as might be agreed upon by the treaty conference. With full stocks in store of that article, which has become a necessity in Japan as well as in other Eastern countries, and having paid the lower duty, the importers would have reaped the profits of the enhanced price of kerosene expected to follow the higher tariff rate. The treaty conference having adjourned without revising the tariff rates, left the dealers in kerosene with an oversupply on hand, which has necessarily reduced the imports of that commodity during 1887. This decreased import into Japan of kerosene may, therefore, be regarded as abnormal and not as indicating a decreased demand and consumption of that product from that of previous years. When it is considered that nearly all other articles of commerce between Japan and the United States increased, as shown above, there is no especial cause for dissatisfaction or regret at the condition of the trade of the United States with Japan in 1887 as compared with 1886.

The increase of exports from Japan to the United States of more than $1,500,000 during the last commercial year is practical proof (there being no sentiment in trade) that the United States continues to find in Japan a better and cheaper market than elsewhere in which to purchase the special commodities represented by these 21,000,000 yens' worth of supplies required for the American home demand.

There is a positive annual demand in the United States for over 7,000,000 yens worth of the quality of teas imported by our people from Japan, and the Japan supply so far fully meets this demand, and on such terms as accommodate the consumer and makes profitable the middle agency of the merchants who direct its import and transit across the sea. Otherwise China, India, and other lesser tea-producing lands would monopolize the American tea trade, now largely supplied by Japan. Also with raw silk; the investment of over $11,000,000 annually in this commodity by the American people, and that, too, admitted duty free into American ports, has created a great American industry of comparatively recent growth in the manufacture of silk, which manufacture yields largely remunerative profits to the investors, gives occupation to laborers, and cheapens silk to the already great and increasing demand at home. The balance of trade, it is true, as interpreted by the mere figures of the customs returns, is technically in

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favor of Japan annually by 18,000,000 yen; but the products which she sells to the United States are now necessities to our American home market, and these millions are in fact reproduced annually by interests and profits on the original principal, just as certainly as are the profitable returns realized by the direct exports of our own productions in Japan.

As has been already observed from the foregoing tabular statements, the four leading constituents of the American export trade to Japan are kerosene (over one-half of the whole export from the United States to Japan in 1887), books, clocks, and flour.

In cotton and woolen goods and iron-manufactured products Great Britain, continental Europe, and India have heretofore monopolized the trade almost exclusively. The class of cotton and woolen goods, especially cotton goods, demanded (and the only kind demanded) by the Japanese people are not as yet manufactured in the United States. It is a specific requirement and demands a specific supply by the manufacturer. The class of cotton goods I refer to is the lightest of cotton piece goods, 40 yards to the piece, and which Great Britain and other European countries and India now furnish to this market weighing 9, 8, 7, and even less pounds to the piece. The lightest American cotton piece goods in commerce, I believe, weighs 14 pounds to the piece, and I believe that even this is exceptionally light for American cottons. The character and textures of the native Japanese costume, it is alleged, for the lining of which the light cottons are used, creates a demand for this light and correspondingly cheap cotton goods. That our American mills and manufacturing capital will ever attempt to enter the Japanese markets with a class of cheap light cottons against European and India competition will depend no doubt on two considerations and conditions: First, whether the present high American tariff rates are to be maintained, and, second, whether the home demand for the higher priced products of American manufacturers will be a supported and continuing demand by our sixty millions of people? If the tariff is maintained as now, higher prices will be demanded and received for the same fabrics at home than can be realized in any other country, and especially so long as no surplus or overproduction gluts the home market. To prevent such overproduction of manufactured products, the practice has too often been to close the factories, shut out from employment the laborers who must toil for food and clothing and wait for the supply to become exhausted rather than seek abroad a market at lower prices; the increased price paid by the consumer being, of course, controlled and scaled by the amount of the duty imposed on similar manufactured imports. With an adequate tariff reduction, sufficient only for the national revenues, with the vastly increasing development of the producing as well as manufacturing capacities of our country, supplemented by the fact that nearly 7,000,000 bales of raw cotton are at the very doors of our factories, saving thousands of miles of ocean transportation, there is no reason (and no obstacle which can not be surmounted) why in these commodities the United States may not in the

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early future hopefully enter the markets of Japan and all other Oriental countries and compete for an equal share of the cotton and woolen trade now enriching the commerce of other countries. The last annual returns of Chinese customs show that in the northern portion of that great Empire we sell nearly $6,000,000 of American manufactured cotton goods (drills and sheetings) directly exported from our own mills. This, too, in the teeth of the competition with the greatest and most enterprising of European manufacturing nations. If the United States can already sell profitably these $5,000,000 or $6,000,000 of cotton goods to China, why not to Japan, which is even more accessible to our exporters than her imperial and colossal neighbor?—TOKEI, JAPAN, *May 28, 1888.*

RICHARD B. HUBBARD.

ASPHALT AND PETROLEUM DEPOSITS IN VENEZUELA.

Ever since the early Spanish explorations the existence of asphalt has been recognized and that of coal suspected in this section, but it was not until after the erection of Venezuela into an independent republic that these deposits began to attract attention.

In the year 1834 the Indians of the Goajira were making incursions into civilized territory, near the river Tocui, and during one of these raids various cattle-owners from the town of Mojan, with a detachment of men, mounted and armed, began an exploration of the forests which extend from the westward of that village as far as the foot of the mountains. Their object was to search for cattle which had been stolen by the Indians, and in the course of their investigations they encountered a phenomenon previously unknown to any one. In the side of one of the banks of a gully was an aperture, resembling a large cave, which shot forth, without intermission, smoke, flames, and burning cinders. The exploration here terminated, and on the return of the party its members gave their versions of the circumstances of the discovery of what they termed a volcano.

The Government did not then occupy itself with the investigation of the position and character of this phenomenon, nor were there any individuals willing to undertake such a difficult exploration through large, uninhabited forests, intersected in all directions by deep gorges. The belief in the existence of a volcano became, however, universal, and fifteen years after the first discovery various residents of Mojan stated that for several days following the earthquake of May 3, 1849, there was seen in the direction of the mountains of Perija a great cloud of smoke during the day and at night a splendid brilliancy. Neither at this time did the Government take any measures to ascertain the facts, and the public in general did not much occupy itself with the phenomenon, following, as it did, in the wake of a public calamity.

Later, however, after repeated efforts on the part of various individuals, the Government was induced to appropriate a small amount for purposes of exploration. From the Sierra of Perija, in the part nearest the lake, to the west of Maracaibo, stretch in a NNE. direction the hills called the Sierra de Tulé, whose elevation is not very considerable, and with an extension of about 50 kilograms. To the west of these hills runs the river Tocuy, and on its east side are the headwaters of the rivers Tulé and Riocito. The Tulé, which is the larger, begins its easterly course at the northerly part of a cordon of low hills, known as the Sierrita de los Guineos. It follows in this direction until below Guasdual, 15 kilometers from the Sierra de Tulé, and then turns to the NE. for 30 kilometers, passing Irragori and arriving at

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the swamps of Tulé, where it deposits a portion of its water. From this swamp its course is to the north for more than 30 kilometers, and it then empties into the river Tocuy at the distance of 1 league from Caño Negro.

The river Riocito, commencing about 15 kilometers from the Tulé, follows approximately the same course as the latter until its junction with the Tocuy.

Neither the Sierra de Tulé nor these two rivers are found on the map of the state constructed by Codazzi, previous to 1830, nor in other maps made subsequently, all of which, however, have for a basis the work of Codazzi. Beside the range known as the Sierrita de los Guineos there are two others of slight elevation and somewhat distant one from another, the one beginning near the river Tulé and the other near Los Ranchos de Guasdual.

The general direction of the road from Maracaibo to Irragori is from east to west, with a very slight northerly inclination, the distance being about 80 kilometers. The road is almost level, with a barely perceptible decline from the Sierra to the lake. A cart-road could be easily constructed, and should a railway be projected there would be close at hand the best class of wood for that purpose.

At the beginning of the exploration of the district situated between the Sierra de Tulé and the river of the same name attention was drawn to the numerous croppings of asphalt noticed at the foot of the Sierra de Guasdual. These croppings begin above Matuzalen and follow parallel to the sierra, on its eastern side, as far as its extremity. All these deposits of asphalt are found in various stages of condensation, none, however, having the solidity of those of San Timoteo and the swamp of Mené on the east coast of the lake. The deposit of Matuzalen is the principal, having 60 meters of length and from 10 to 15 of breadth, and the force with which it sprouts up raises it more than half a meter above the level of the ground. At a distance of 30 kilometers east of Irragori, near the road leading to Maracaibo, and on an estate called Matapalo, is found a large asphalt deposit of an area of about 6,000 square meters.

COAL DEPOSITS.

It is the abundance of carboniferous deposits, however, which gives the greatest importance to the territory explored. At little more than the distance of 1 kilometer from the river Tulé, near Los Ranchos de Guasdual, was found the first view of coal among the many discovered during the exploration. From this point, for a distance of 5 kilometers, exist fourteen veins more of the same mineral visible in the banks of the river, many of them measuring from 10 to 30 feet in diameter, and with an apparent direction of NNE. and SSW. A number of these veins traverse the bed of the river at a depth of more than 3 meters, and it is probable that they extend a long distance on the other side.

Continuing the exploration along the river for a distance of 10 kilometers it may be confidently asserted that its banks, as far as the foot of the sierra, are an almost homogeneous composition of the same mineral visibly cropping out with scarcely any interruption. These croppings are also visible at various points of the banks of the creeks which empty into the Tulé and Riocito, and abound in the last-named river for a distance of more than 12 kilometers.

In view of these facts it may be safely affirmed that in that part of the territory of the state included between the Sierra de Tulé, the river of the same name, the Sierra de Guasdual, and a line drawn from the extremity of the latter to the Sierra de Tulé, there exists a carboniferous formation which occupies an approximate area of 300 square kilometers.

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Three of these coal veins are in constant combustion, the causes for which, and the date of commencement, are unknown. The first of these three is situated on the right bank of Algibe Creek, about 1 kilometer from Los Ranchos de Guasdual. It does not eject either smoke or flame, and its state of combustion is revealed only by the elevated temperature of the spot.

The second ignited vein is upon the left bank of the river Tulé, 6 kilometers distant from the before-mentioned Ranchos de Guasdual. At a distance of 15 or 18 feet above the level of the river there is a small fissure, measuring about 18 by 6 inches, from which smoke is constantly issuing. To the right and left of this crevice are several smaller ones, which do not eject smoke, but which give out an intense heat, showing the activity of the combustion.

The third vein is found close to the sierra, on the bank of a creek, and at a short distance from the river Tulé. From it smoke is constantly issuing, accompanied frequently by flames, whose brilliancy, it is said, may be distinguished, on clear nights, from localities only a few miles west of Maracaibo. Many circumstances unite to confirm the belief that this is the volcano heretofore mentioned. All this coal is of one quality, and of the bituminous variety. It is very similar to the cannel-coal of England, although, perhaps of less density, and containing less bitumen, and appears free from sulphur and other substances which many other coals contain. It burns freely in the open air, almost without smoke or sparks, producing a bright and clear flame, with a sufficiently intense heat. It does not "clink" or disintegrate to any great extent in the process of combustion, and leaves a very small residue of ashes. It is believed that this coal is far superior to any other as yet discovered in Venezuela, and it is to be regretted that the state has not sufficient resources to undertake the working and development of this wealth lying less than 100 kilometers from Maracaibo.

No mine in Venezuela offers advantages equal to those of Tulé, not only on account of the excellent quality and extraordinary abundance of the coal, but also from the facility of working. All the veins are found at such a slight depth below the surface that nothing more than trenches are needed for their development. In only one locality, and for but a short distance, would galleries be necessary, and these could be easily run both straight and transversely, and in no part of the carboniferous territory would it be necessary to erect machinery to raise the coal to the surface.

Upon considering the extraordinary size of the veins of coal which cross the river Tulé, the idea occurs that the beginning of this extensive carboniferous formation may be found at a considerable distance, and it would be interesting to decide the following questions:

1. To what distance do the croppings to the north of the river Riocito extend?

2. Whether the Sierra de Tulé contains coal deposits equal or similar to those already discovered?

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3. Whether the carboniferous formation extends to the south of the river Tulé as far as the Sierra of Perija?

If the formation is also found in the last-mentioned range there can be no doubt that there is the basis of all these deposits. In the department Guzman Blanco, bounded by the lake, the rivers Palmar, Santa Anna, and Sierra de Perija are found a considerable number of asphalt deposits, and a coal formation at the foot of the sierra, visible in two large crossings situated south of the town of Machiques, between Rio Negro and Santa Anna.

At La Paja, near the river Apon, pieces of amber have been discovered, but no special investigations have been made respecting the possible abundance of this substance.

PETROLEUM DEPOSITS.

That part of the department Colon situated between the rivers Santa Anna, Zulia, and the Sierra of the Colombian frontier is very rich in asphalt and petroleum.

The information which we have regarding this extensive and interesting section, which is an uninhabited forest, is derived chiefly from the reports of the searchers for balsam copaiba, which abounds in this region, although the following data are taken from the personal observations of an American gentleman who made a special exploration. Near the Rio de Oro, and at the foot of the sierra, there is a very curious phenomenon, consisting of a horizontal cave, which constantly ejects, in the form of large globules, a thick bitumen. These globules explode at the mouth of the cave with a noise sufficient to be heard at a considerable distance, and the bitumen, forming a slow current, falls finally into a large deposit of the same substance near the river bank.

The territory bounded by the rivers Zulia, Catatumbo, and Cordillera is rich in deposits and flows of asphalt and petroleum, especially toward the south, where the latter is very abundant. At a distance of little more than 7 kilometers from the confluence of the rivers Tara and Sardinete there is a mound of sand of from 25 to 30 feet in height, with an area of about 8,000 square feet. On its surface are a multitude of cylindrical holes of different sizes which eject with violence streams of petroleum and hot water, causing a noise equal to that produced by two or three steamers blowing off simultaneously. For a long distance from the site of this phenomenon the ground is covered or impregnated with petroleum. The few explorers for balsam copaiba, who have visited this place, call it the *infernito* (little hell).

Among other items it is stated that from one only of these streams of petroleum was filled in one minute a receptacle of the capacity of 4 gallons, which for one hour would be 240 gallons, or 5,760 gallons in twenty-four hours; and even supposing this calculation to be somewhat exaggerated, the fact remains that such a considerable number of petroleum jets in constant active operation must produce daily an enormous quantity. This petroleum is of excellent quality, with a density of 83°, which is a sufficient grade for foreign markets.

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Considering the immense amount of inflammable gases which must be given out by the flows and deposits of petroleum described above, it may be easily believed that this has a direct bearing upon the phenomenon known since the conquest as the "Faro" of Maracaibo. This consists of constant lightning, without explosion, which may be observed toward the southward from the bar, at the entrance to the lake, and which Codazzi, in his geography, explains as being caused by the vapors arising from the hot-water swamps situated about 1 league to the eastward of the mouth of the Escalante River, at the southern extremity of the lake.

In the department Sucre, at the foot of the mountains, are found various croppings of asphalt and coal. Near the mountains, and not far from the river Torondoy, there are various flows of a substance which appears to be distinct from either asphalt or petroleum. It is a liquid, of a black color, with little density, and strongly impregnated with carbonic acid, and its apparent identity with a substance met with in the United States among the great anthracite deposits, leads to the belief that there also may be discovered formations of that valuable mineral.

The foregoing data have been collected to call attention to the possibilities of successful investment of capital. As I have already reported to the Department, with detailed explanations, British capitalists have captured a flourishing petroleum industry, situated in the first mountain range south of the lake.

The state of Zulia, in which are situated all the deposits of coal, asphalt, and petroleum herein mentioned, is as yet free from any monopolistic concession; but this can not last forever, and it remains to be seen whether American enterprise and capital will eventually take in hand the development of what should be a most profitable industry, or whether, as is usually the case in South America, Europeans will reap the fruits of information furnished, perhaps, primarily, by the representatives of the United States. There are many other natural advantages in Venezuela which could be developed without excessive expense, and with an almost absolute certainty of most profitable results.

The Government is disposed to extend every reasonable encouragement and protection, and to-day various European corporations are drawing large incomes from the capital which they had the courage to invest in this country. — MARACAIBO, *February 8, 1888.*

E. H. PLUMACHER,
Consul.

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INTRODUCTION OF THE TELEPHONE INTO SIAM.

The plant for the telephone at Bangkok has arrived from Germany. I am informed by an electrical expert conversant with telephonic affairs that the instrument is much inferior to the American instrument, costs about five times as much and has not near the power of the Bell; but as the control of the matter was in the hands of a German who has a friend at court, no one else was consulted in the matter, and he had the power to do as he pleased. As it is, the Germans are getting a strong hold here with the officials, which is somewhat galling to the English and French residents, who, in the past, had a monopoly of the business. —BANGKOK, *April 17, 1888.*

JACOB I. CHILDS,
Consul-General.

LAWS RELATING TO STRIKES IN THE NETHERLANDS.

There exist no laws in the Netherlands which apply especially to strikes or the mere quitting of work in order to compel an increase or prevent a reduction of wages. Overt acts, misdemeanors, and crimes occasioned by or resulting from strikes and committed by participants therein come under the common laws of the realm, and are triable and punishable by the courts the same in all respects as are similar offenses perpetrated under any other or different circumstances.

From the above it will be observed that there are no laws in this country under which a strike *per se* is regarded as a conspiracy.

I base the foregoing statements upon information received from the Hon. I. A. Levy, barrister, late member of the States General, and a high authority on such matters. —AMSTERDAM, *May 28, 1888.*

D. ECKSTEIN,
Consul.

BEET-SUGAR DUTIES IN FRANCE.

A bill is now under discussion in the French Parliament to modify the sugar duties for the fourth time since the law of 1884, with a view of diminishing the bonus obtained by manufacturers. In May of last year the excise duty paid on sugar for home consumption was raised from 50 to 60 francs, and the additional 10 francs were to be paid, not only on sugar subject to taxation, but also on the portion which was allowed to go free, amounting to nearly one-third of the production, the beet-root worked up being taxed at an estimated yield of 6 per cent., whereas in that year it produced nearly 9 per cent. The new duty consisted, consequently, of a principal duty of 50 francs per 100 kilograms (2 cwts.), and a supplementary duty, or surtax, of 10 francs. The Government has now presented a bill to reduce the principal duty to 40 francs and increase the surtax to 20 francs. The total duty on taxable sugar remains the same, or 60 francs; but the duty on the surplus is to be increased from 10 to 20 francs, and the bonus or bounty, when sugar is manufactured in bond for exportation, becomes reduced from 50 to 40 francs. Friends of the manufacturers, comprising all the agricultural party in the chamber, oppose the bill as an act of bad faith in taking back from pro-

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ducers a concession which had served as a basis for their operations. The minister of finance replies that manufacturers will obtain a partial compensation in the further increase in the yields this year to nearly 9½ per cent. It was, besides, never contemplated that so large a portion of the revenue should be lost. In the first year of the system, established in 1884, the bonus of the manufacturers amounted to 25,000,000 francs; in the second to 43,000,000, in the third to 92,000,000, and in the present year, with the surtax of 10 francs, it will still amount to 64,000,000 francs. The public will have, consequently, paid in four years 225,000,000 francs in the form of duty on sugar not received by the treasury. It is true that the price of duty-paid sugar in France fell from 104 francs per 100 kilograms in 1884 to 97 francs 50 centimes in 1887, notwithstanding the increase in the duty from 40 to 60 francs, and manufacturers pretend, which is, no doubt in a measure true, that the bonus has been shared between them and the consumer; but, on the other hand, the price of raw sugar has also fallen from the increased production, and to prevent Belgian and German sugar entering France, a surtax of 7 francs is levied on European sugar. The present bill is still under discussion, but in one or two divisions taken the majority for it was two to one, and little doubt exists that it will be voted. The law would, however, only be applied from September 1 next. An effect of it will be to reduce the indirect bounty on French sugar exported to England. The legal yield or taxable portion of sugar manufactured was raised on September 1 last from 6 to 7 per cent. A manufacturer working in bond for export discharges his bond on exporting in sugar 7 per cent. of the weight of beet-root taken in, and sells the surplus in France on payment of the surtax of 10 francs per 100 kilograms, the difference of 50 francs below the proper duty of 60 francs forming the indirect bounty. As the surtax is to be raised to 20 francs the bounty will become reduced to 40 francs, but it will be obained on a quantity equal to about one-fourth of the sugar exported. — LONDON ECONOMIST, *June 9, 1888.*

AMERICAN WARES IN AUSTRIA.

This consulate frequently receives inquiries from American commercial and trading firms as well as manufacturers touching exports to and imports from the United States, and concerning articles of American origin which could possibly find a market in this country.

Different articles sold in this market under an American label, and believed by the purchasers to be of genuine American origin, are really nothing but cheap German and British imitations. It may safely be said that numerous articles of our American hardware, mechanics' tools, farming implements, and family utensils would find a market in this country if they could be introduced and brought to the notice of the public. Of such articles, after diligent inquiry on the demands and possibilities of the local market, I would particularly name the following:

1. Improved shoe-makers' tools, new patterns of tailors' shears and flat-irons, latest styles of fluters and plaiters.

2. Iron block planes, adjustable block planes with steel cutters, adjustable plumb and levels, sliding bevels, patent and reversible countersinks, steel screw-drivers, geared breast drills, braces, wrenches of different patterns, screw-augers and steel auger-bits, boring machines, bung borers, patent miter-boxes, bolt cutters, lever chucks, hack saws, rip and cross-cut saws, improved sawing machines,

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3. Shingling hatchets and claw hatchets, pick mattocks and grub hoes, grind-stone fixtures and well wheels, hay and grain forks, manure forks, improved hay knives, cheap lawn mowers.

4. Lock-hinge step ladders, wringers of new patterns, door knobs, especially the ornamental patterns, wardrobe and clothes-line hooks and pulleys, brackets, flush and surface chest handles and drop handles, drawer pulls, side pulleys and screw pulleys, self-acting shade rollers, twine boxes, paper boxes.

5. Meat choppers, sausage stuffers, ice-cream freezers, lemon squeezers, flour and meal sifters, and other articles for family use.

6. Reclining and rolling chairs, barber chairs, folding chairs, light American buggies and cutters, belt lacing, and, finally, different mechanical toys.—PRAGUE, *May 30, 1888.*

CHARLES JONAS,
Consul.

FORMAL OPENING OF THE TRANS-CASPIAN RAILWAY.

On the 27th instant, being the anniversary of the coronation of the Emperor, Alexander III, the Trans-Caspian Railway was opened formally to Samarcand with great ceremony—an event of no common importance to Russia, and even to the world. This road is 1,350 versts in length (about 900 miles) and is primarily a military road. It has been built and is controlled and operated by the ministry of war. At present it is little more than a skeleton road. It is deficient in stations and rolling stock. But the great fact is accomplished. It opens the door into the great field of central Asia. All things requisite to its efficiency will in time be added to it. Though a military road, its political, economical, and commercial uses and results will not be inconsiderable. It brings Russia nearer to its coveted cotton fields, from which so much is hoped. It has already set in active motion measures for the restoration of the old magnificent system of irrigation, which has fallen into dilapidation and disease. One of the old irrigating canals is said to have been 100 miles in length. All successful cultivation of this region is dependent on irrigation, and a great increase in the production of cotton seems to be confidently expected. The importation of cotton into Russia in 1887 is said to have been 10,000,000 poods (the pood being 36 pounds) costing 96,000,000 rubles, and constituting 30 per cent. of the entire imports of the Empire. And it is mentioned with great pleasure by the public prints that the production of cotton in Turkestan rose last year to 500,000 poods, being double that of any previous year.

It must not be supposed that the Trans-Caspian Railway is likely to rest at Samarcand. Beyond lie Taschkent, Ferghana, and Semiretch, which the Russian journals describe as the richest provinces in central Asia, abounding in water, inviting colonization and culture. As these lie in the direct path

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of the interest and the ambition of Russia the early extension of the railway may be confidently anticipated.

At the same time the project of the construction of the great continental railway across Siberia to the Pacific is agitated with increased intent. It is said that explorations of the line will be begun this year. It seems hardly probable that the available resources of the Empire will permit the rapid prosecution of this gigantic undertaking, but it is a work which is necessary to the security and welfare of the Pacific possessions of Russia. Its construction, therefore, is only a question of time. — ST. PETERSBURG, *May 31, 1888.*

GEO. V. N. LOTHROP.

NATIONAL HELLENIC EXHIBITION AT ATHENS.

It has been finally decided to reserve a space for foreign exhibitors in the National Exhibition to be held here in October next. The articles so exhibited are, however, to be at the sole risk of the exhibitors, and will not be allowed to compete with national products or manufactures; and should the limited space assigned in the main building be filled, other exhibitors must erect the necessary sheds or pavilions in the grounds at their own expense. — ATHENS, *May 28, 1888.*

WALKER FEARN,
Consul-General.

POPULATION OF STRAITS SETTLEMENTS.

The total numbers of both the births and deaths registered in the colony show a slight falling off as compared with the previous year. The following statement gives the numbers registered in each settlement during the past two years:

Settlement.	Births.		Deaths.	
	1886.	1887.	1886.	1887.
Singapore	2,887	2,528	6,368	6,165
Dindings	55	78	58	90
Penang	1,807	1,912	3,795	3,800
Province Wellesley	2,551	2,445	2,697	2,706
Malacca	3,205	2,698	2,468	3,163
Total	10,505	9,661	15,326	15,924

The ratio of births must always be small as compared with the population, which increases steadily, owing mainly to immigration from China and India, the immigrants including a very small number of females, and the disparity between the sexes being consequently very great. The total population of the colony at the census taken in 1881 was 423,384. It may now be estimated to have reached at least 536,000.

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NORWEGIAN COD-FISHERIES.

The principal cod-fishery, that at the Lofoten district, which is as important to this country as that of Newfoundland to America, commenced with its usual regularity, in the middle of January, under favorable auspices, and the weather continuing calm and not too cold, it followed its regular course up to the middle of April, terminating with a return of 26,000,000 fish; the allied products amounting to 38,000 barrels of liver, 39,000 barrels of spawn, and 16,100 barrels of oil for medical use; total value of all being $1,600,000. For the year 1887 the proceeds of the Lofoten catch were 29,700,000 fish, 38,300 barrels of liver, 29,850 barrels of spawn, and 9,500 barrels of medicine oil, estimated at $1,200,000.

From the beginning of this winter's season the fish proved to be larger and fatter than the two foregoing years, and the prices also by this reason went higher, varying during the season from 15 to 19 kroners for one hundred fish, against 10 to 12 kroners in 1887. Although the produced quantity itself was smaller and the number of fishermen engaged larger, the average gross profit of each fisherman this winter is estimated at 190 kroners, against 163 kroners in 1887, and 225 kroners in 1886. Besides 648 smacks occupied in curing the fish bought by the producers, there were collected in Lofoten at the height of the fishing season 7,957 fishing-boats, whereof 1,520 used only nets, the rest using the long lines or trimmers and hand-lines, the whole fleet being manned with 33,700 hands. In 1887, 6,883 boats with 28,300 men were employed.

Besides the Lofoten cod-fishery, that at the so-called "outer side," comprising the much exposed north coasts of the districts of Westeraalen and Rôst, is of importance, and particularly this winter, was very successful, producing 10,000,000 fish. Also in the southern fishing districts of Sôndmôre and Romsdalen, situated between this city and Drontheim, the catch turned out satisfactorily, being reported at 12,000,000 fish at least, this being an increase of more than 9,000,000 fish as against the previous year. The size of the fish was large and the quality better and fatter than the previous two years, and consequently produced oil and spawn in increased quantities.

According to the above statements the total proceeds of the winter's cod-fisheries, reported now to be finished, amount to 48,000,000 fish, but no doubt 50,000,000 fish can be counted upon for exportation, of which 45,000,000 are salted and cured, and the others exported in the dried state.

The still remaining cod catch, in the farthest northern districts, at Finmarken, from Tromso around the North Cape and to the Russian border, the so-called capilon fishery, has already commenced, but up to this time with a very bad result. A total failure in these parts may be anticipated. — BERGEN, *May 5, 1888.*

F. G. GADE,
Consul.

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SUMATRA TOBACCO.

The Deli Company, of Amsterdam, has just published the results of its operations, covering the yield of the crop of 1886, which was disposed of in this market in 1887, and I quote from the company's report as follows:

The company owns twelve plantations, and raised upon them and brought into the market 24,013 bales of tobacco, and had also consigned to them by and sold for other planters and owners 44,410 bales of tobacco. The average price realized for their own tobacco was 173 cents, Dutch currency, per one-half kilogram, as against 161 cents for their crop of the previous year (1885).

The company's reserve or sinking fund has been increased by 436,631 florins, and amounts now to 2,331,792 florins. The company's capital (2,000,000 florins) remains unchanged. Its working capital amounts at this time to fully 8,000,000 florins.

Finally, it declares a dividend of 1,098 florins per share, which, being for 1,000 florins each, is equal to nearly 110 per cent.

The Tobacco Company Arendsburg, of Rotterdam, a corporation which is also engaged in the cultivation of tobacco on the island of Sumatra, a short time ago declared a dividend of 152 per cent. as the product of its enterprise, and on account of the crop of 1886, which was sold last year.—AMSTERDAM, *March 23, 1888.*

D. ECKSTEIN,
Consul.

AUSTRALASIAN WOOL.

Early in the season of 1887–'88 the wool trade showed every indication of being larger than that of 1886–'87. The copious rains which occurred throughout the whole of the colonies just previous to shearing weighted the fleece somewhat heavily with yolk, Bathurst burr, and grass-seed. The result has been that the clip in many districts was more or less depreciated in value. The northern and western districts are said to have suffered most in this way. The wools, however, in the southern districts, and especially in Riverina, fully sustained their usual high character. At the opening of the sales in Sydney on October 12, 1887, Messrs. Mort & Co. brought forward a catalogue of 1,170 bales. The sale had been delayed about a fortnight on account of the heavy rains, but it was very well attended, and competition was keen. Messrs. Mort & Co. state that growers who sold at the early sales of the previous season, and reaped the benefit of the high prices then prevailing, were somewhat shy of accepting the low prices of the present season. Subsequently the views of the sellers and buyers were brought more into harmony, and sales were freely made. At the sales in November last prices showed a tendency to advance. The fluctuation, however, was slight, and the season all through was said by Messrs. Mort & Co. to be the most even that ever came under their observation. The subjoined table shows the range of the values prevailing throughout the season at the Sydney sales:

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Greasy.

	Pence.
Super, skirted	10 to 11
Good average, free	8 to 9
Medium, faulty	7 to 7½
Inferior, burry	4½ to 6
Lambs, super	7½ to 9¼
Average	5 to 6
Short, burry	3 to 4

Washed.

Superior	None offering.
Good average	12 to 14
Dull, skirty	10 to 11
Heavy, seedy	9 to 9½
Pieces	6 to 10
Locks	3 to 7

Scoured.

Fleece, bright	15 to 18
Fleece, average	14 to 15
Skin-wool, average	14 to 15
Pieces, free	12 to 14
Pieces	9 to 11
Locks	5 to 9

The total quantity of wool handled by Messrs. Mort & Co. amounted to over 60,000 bales, of which nearly 40,000 bales were sold in Sydney. The prices at the February sales showed a tendency to decline, the market being affected by the London sales. Good greasy, however, brought 7¼*d.* per pound, faulty from 6*d.* to 6½*d.*, lambs' wool from 3*d.* to 5½*d.*, washed fleece from 8*d.* to 12*d.*, and scoured from 10*d.* to 15*d.* The Sydney sales showed that a larger quantity of wool had changed than at any other time, and amounted to 150,000 bales. The proportion sold was fully two-fifths more than that shipped. This is believed to have restricted the demand for wool in the London market. The quantity of wool shipped from Sydney up to the 1st of March, exclusive of that sent to the neighboring colonies, was 344,329 bales, against 279,622 bales and 304,521 bales for the two previous seasons, showing an increase of 65,707 bales over that of 1886–'87, and 40,808 bales over that of 1885–'86.

Messrs. R. Goldsbrough & Co., in their circular of March 5, state that "pastoral prospects are very encouraging, an excellent clip and splendid lambing being constantly expected."

At the January and February sales the wools from New England and Manara were found to be somewhat heavy in condition, and the prices, therefore, did not range very high. The season was practically closed on the 25th of February, and fortnightly instead of weekly sales are now being held. The rates of freight to London for sailing vessels are from $\frac{3}{8}d.$ to $\frac{7}{16}d.$ per pound for greasy wool, and from $\frac{1}{2}d.$ to $\frac{9}{16}d.$ for washed wool. The rates by steam are $\frac{11}{16}d.$ per pound for greasy and $\frac{13}{16}d.$ for washed. Strong

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efforts have been made in Victoria to have the Melbourne sales begin early in September, in order to give purchasers an opportunity of securing the early shorn clips, most of which now go to London.

The change can not much longer be delayed, as early arrivals have been steadily increasing in bulk. The sales began in Melbourne, on October 5, at the warehouses of Messrs. Goldsbrough & Co., limited. Competition was very sharp, and the prices brought were fully equal to rates in London at the September sales. The bright light wools from eastern Riverina commanded full rates throughout, 11*d.* to 12*d.* per pound frequently being paid for large clips. Mr. Edward Greville's Year Book of Australia states that up to the middle of November the London buyers were the chief operators at the Melbourne sales, and that it is estimated that fully one-half of the wool purchased for export was for English and Scotch manufacturers. The American and continental buyers did not show a disposition to purchase until after the 15th of November, and competition became sharp with them before the close of the year. At Adelaide, South Australia, the sales began on the 20th of September. As a rule the new clip reaches the seaboard early in the season, and the selling brokers there are enabled to commence sales a week or two in advance of the other colonies. There was a large attendance of English and continental buyers. The competition was confined chiefly to the former, especially for the wools from the Darling. The range of prices was not high. The wools offered were more or less seedy. In October greasy merino from the northern part of the colony brought 5¾*d.* to 6¼*d.* per pound, and clean wools 7*d.* to 8*d.* per pound. Cross breds, which are always limited in south Australia, brought from 7*d.* to 8*d.* per pound. The south Australian wools this season were generally better grown than those of last season. Those from the hill country were said to be the most attractive, the north were earthy and seedy, while those from the western districts were not in good condition. The shipments from the 1st of July to the end of December were 127,732 bales, against 118,902 bales for the corresponding period of 1886. At the sales in London in October prices began to weaken. The demand for wools suited to the American market was extremely limited, only about 1,200 bales being purchased during the series. It was noticed at the sales held in November and December that the quantity of the new clip was larger than that of the corresponding periods of 1886 and 1885, the number of bales offered being 90,000 against 58,000 and 35,000 bales for 1886 and 1885, respectively.

The New Zealand Loan and Mercantile Agency Company, limited, report under recent date that wool at the last series of sales in 1887 exhibited considerable variety both in regard to growth and condition. Many wools from Queensland and the northern districts of South Australia and New South Wales proved to be somewhat wasty, whilst buyers who had the opportunity of testing the staple from Queensland complained that it yielded a top which was harsh and of yellow color. The wool from the western part of

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Victoria showed increased fineness with some tenderness of staple, but the bulk of the wool from other parts of Australia was well grown and light in condition. Only about 1,500 bales were bought at the last series of sales of 1887 for the American market out of the 49,000 taken for the foreign market. Reports from the manufacturing districts varied somewhat before the sales began, but on the whole they were not encouraging, and prices were low. After the end of the first week competition became more regular, and there was a demand for all descriptions of wool. Good combing wools, which were mainly of the new clip, realized a slight advance. The New Zealand Loan and Mercantile Agency Company, limited, estimate the quantity of wool carried forward to 1888 at 1,100 bales against 35,000 bales brought forward from the previous year.

A singular feature connected with colonial wool is that while the annual quantity is increasing there is no advance in the value; indeed the decline in value since 1872 is something extraordinary. The total product of colonial wool during the year 1872 was 743,000 bales, and the price realized was £19,690,000 ($95,821,385). In 1887 the total product was 1,444,000 bales, nearly double the quantity of that of 1872, but the value showed a slight increase, being only £526,000 ($2,559,779) more than that of 1872. The following table shows the total quantity and value of wool produced in the British colonies for each year since 1872, together with the average price per bale in English and American currency:

Year.	Bales.	Average per bale.		Total value.	
		English currency.	American currency.	English currency.	American currency.
		£. s.			
1872	743,000	26 10	$128.95	£19,690,000	$95,821,385.00
1873	747,000	24 5	118.01	18,115,000	85,156,647.50
1874	829,000	23 5	113.14	19,270,000	93,796,921.00
1875	917,000	22 5	109.28	20,403,000	99,291,199.50
1876	937,000	18 15	91.24	17,550,000	85,407,075.00
1877	1,021,000	18 15	91.24	19,144,000	93,164,276.00
1878	970,000	18 15	91.24	18,187,000	88,507,035.50
1879	1,015,000	16 10	80.29	16,748,000	81,504,142.00
1880	2,088,000	20 5	98.55	22,032,000	107,178,728.00
1881	1,161,000	17 5	83.95	20,027,000	97,461,395.00
1882	1,190,000	17 10	85.16	20,825,000	101,244,862.50
1883	1,253,000	16 15	81.51	20,988,000	101,938,102.00
1884	1,303,000	16 0	77.86	20,848,000	101,456,792.00
1885	1,282,000	14 0	68.13	17,948,000	87,153,942.00
1886	1,432,000	13 10	65.69	19,332,000	45,414,176.00
1887	1,444,000	14 0	68.13	20,216,000	98,381,164.00
Average for sixteen years	1,083,187	18 0	88.59	19,457,937	94,702,050.41

It will be seen from the preceding table that the increase in the production has done but little to increase the amount of money received by the growers. After making allowance that the proportion of colonial wool shipped in the grease is now much larger than it formerly was, it is considered that the quantity from 1872 to 1887 is equal to about 80 per cent.,

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in other words the colonies are obliged to grow 80 per cent. more wool than they did in 1872 in order to realize the same amount of money. Nearly the whole of the product of colonial wool is grown in Australasia, the supply from Cape Colony (South Africa) being extremely small. The annual average wool product of Australasia has been for many years considerably over 1,000,000 bales.

EXPORT OF WOOL.

To judge from the returns thus far received, the total exports of wool from all the Australasian colonies for the year ended the 30th of June, 1888, will probably reach 1,239,760 bales, against 1,140,834 bales for 1887. That these figures are not apt to be far from correct, I give below a table showing the export of wool from each of the Australasian colonies, from the 1st of July, 1887, to the 5th of March of the present year, compared with the corresponding period of 1886–'87:

Colony.	1887–'88.	1886–'87.	Decrease.	Increase.
	Bales.	*Bales.*	*Per cent.*	*Per cent.*
New South Wales	344,377	285,530	.....	58.847
Victoria	325,170	307,453	.....	17.717
South Australia	144,255	140,834	.....	3.421
Queensland	63,488	51,168	.....	22.320
Western Australia	16,438	16,473	.....	.65
Tasmania	16,657	13,904	.....	2,753
New Zealand	195,511	215,048	19.537	.....
	1,115,899	1,030,310	19.537	105,125
Total increase	.....	.....	.....	85,586

CONTINENTAL EXPORT.

The total wool export to the continental markets from March 1, 1887, to February 29, 1888, was 85,980 against 47,805 bales for the corresponding period of 1886–'87 of the export for 1887–'88. Antwerp received 20,336 bales by way of London.

I am indebted to Messrs. R. Goldsbrough & Co., limited, for the following table showing the exports from each of the Australasian colonies to the continental ports for the season 1887–'88:

Exports to—	Victoria.		N. S. Wales.		South Australia.		Total.	
	Direct.	Via London.	Direct.	Via London.	Direct.	Via London.	Direct.	Via London.
	Bales.	*Bales.*	*Bales.*	*Bales.*	*Bales.*	*Bales.*	*Bales.*	*Bales.*
Antwerp	3,999	16,987	15,355	18,537	982	4,697	20,336	40,221
Bremen	1,009	151	2,082	263	.....	.....	3,091	414
Hamburg	2,124	3,175	1,777	645	76	.....	3,977	3,820
Havre	.....	.....	3,421	.....	.....	.....	3,421	.....
Marseilles	5,731	.....	2,405	.....	1,405	.....	9,700	.....
Total	.....	.....	.....	.....	.....	.....	41,525	44,455

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EXPORT TO THE UNITED STATES.

Messrs. R. Goldsbrough & Co. supply the following table showing the export of wool direct to the United States from Melbourne for each season since 1871–'72. The first cargo of 12,000 bales was forwarded to New York in the ship *Hercules* in 1887:

Year.	Direct.	By steamer, via London.	Total.
	Bales.	*Bales.*	*Bales.*
1871–'72	18,659	.....	*18,659
1872–'73	11,851	.....	†11,851
1873–'74	9,745	.....	9,745
1874–'75	19,042	.....	19,042
1875–'76	5,032	.....	5,032
1876–'77	7,567	.....	7,567
1877–'78‡	5,071	.....	5,071
1879–'80	13,616	3,935	17,551
1880–'81	2,499	873	3,372
1881–'82	3,843	7,227	11,070
1882–'83	2,043	3,751	5,794
1883–'84	8,979	5,884	14,863
1884–'85	2,346	3,875	6,221
1885–'86	10,974	9,187	20,161
1886–'87	10,621	§4,739	15,360
1887–'88	16,105	3,804	‖19,909

The direct import from Sydney during the season of 1887–'88 consisted of only 486 bales. The wools shipped to the American market seem to be far superior to those of last season.

Messrs. R. Goldsbrough & Co. state—

The eastern Riverina wools were well grown, bright, soft, and extremely light in condition; the very perfection of high merino, and especially adapted to the American market.

The same authority states, in reviewing the condition of the whole of the clip—

Our opportunities for judging the various classes of Australian wools are exceptionally and specially in Melbourne, from the proximity of that port to the chief wool-growing provinces of Australia, namely, Riverina and the western district of Victoria. Melbourne has long been the port not only of the largest proportion of the choicest wools grown on this continent, but of a greater variety of the staple than any other port; consequently the wools submitted in her sale-rooms represent the produce of a very wide range of country, extending from Tasmania to the Barcoo on the one hand, and from the southeastern district of south Australia to the shores of the Pacific Ocean on the other, with occasional parcels from north Queensland, New England, West Australia, and New Zealand, thus enabling us to speak of the year's clip from a very favorable standpoint. Taking the clip as a whole it may be classed as a long way above the average, for though deficient in quality the chief essentials of a thorough combing-wool were present in almost every flock.

That the Department of State may be supplied with full information, not only in regard to the condition of the present clip, but as to that of Aus-

*Including 1,796 bales shipped to Montreal. †Including 1,829 bales shipped to Montreal.
‡No direct shipments were made during the season of 1878–'79.
§Including 391 bales shipped to Montreal. ‖Including 3,000 bales shipped to Montreal.

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tralasian wools in general, I forward herewith a collection of samples which I have been fortunate enough to obtain, through the assistance of Mr. J. H. Maiden, F. R. G. S., curator of the Technological Museum, at Sydney. These samples represent almost every grade of Australian wool suited to the American market.*

Mr. Maiden says, in a note accompanying the samples bearing date the 3d instant:

I am desired by the committee of management of the Technological Museum to point out that the collection of wools sent to you for the Department of State, at Washington, D. C., is a very valuable one on account of its representative character. I hope it will arrive at its destination safely and be appreciated. I am also desired to point out that the arrangement of the collection is due to Mr. Alfred Hawkesworth, honorary wool classer to the museum, whose knowledge of Australian wools is as varied as it is profound.

A descriptive list of these samples, prepared by Mr. Hawkesworth, is appended at the conclusion of this report.

THE EFFECT OF AUSTRALIAN WOOL ON THE MARKETS OF THE WORLD.

Mr. William Findlay, of Sydney, to whom I am indebted for much valuable assistance in the preparation of this report, has recently drawn attention to the fact that the Australasians are in the habit of attributing to their wool supply a far greater influence upon the markets of the world than it deserves. It is often asserted here that when the clip is short wool will be dearer, and when large that it will be cheaper. The fallacy of the assertion will be apparent when it is considered that Australasia supplies annually about 450,000,000 pounds of wool against the world's supply of 2,000,000,000 pounds. For instance, it is known that the number of sheep in Europe has decreased about 50,000,000 during the past ten years, or equal to a production of 200,000,000 pounds of wool. The production of wool from the River Plate increased from 185,000,000 pounds in 1879 to 240,000,000 pounds in 1887, or an increase of about 55,000,000 pounds, although there was a decrease of 24,000,000 pounds from 1885 to 1887. In the United States the increase from 1880 to 1884 was 68,000,000 pounds, and the decrease from 1884 to 1887 23,000,000 pounds. Mr. Findlay commends a report just published by the United States Bureau of Statistics, showing the effect of the production of wool upon the population which he thinks of special interest to Australasians, inasmuch as the results obtained in America are certain to be repeated here. I learn from the report referred to that in 1840 the sheep in the United States of America numbered about 19,000,000. In 1880 the number had increased to 35,000,000; but in 1840 the bulk of the sheep were grazed in the New England and Eastern States and none in the Southern and Western States. In 1880 the Southern and Western States grazed one-third of the whole number, while the New England and Eastern States only grazed half the number they had in 1840. The highest point was reached in 1884, when the number of sheep was 50,000,000. Of that number more than half were grazed in the Southern

* These samples have been consigned to the National Museum, Washington.

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and Western States, and only 8,000,000 in New England and the Eastern States, showing that the increasing population drove the sheep out of the Eastern and New England States toward the more sparsely-settled Southern and Western States and Territories, the land being required, where population was dense, for agriculture, and being too dear to profitably graze sheep. Since 1884 even the Southern and Western States seem to have become unable to sustain their former number, the result being that the total number of sheep in the United States has decreased from 1884 to 1887 by about 6,000,000. As the population of the United States is increasing very rapidly (the annual increase being estimated at nearly 2,000,000) and continually pushing out West and South, it is not unreasonable to suppose that the reduction in the number of sheep which has been going on in the New England and Eastern States has now set in in the West and South. It has been observed that from 1879 to 1887 River Plate and colonial wool increased from 1,500,000 to 2,000,000 bales, or an increase of 500,000, while from 1877 to 1887 the supplies of Australasian, South African, River Plate, and United States wool increased from 2,000,000 to 2,700,000 bales, or an increase of 700,000. Yet we find that the consumption has kept pace with the supply, for at the present time manufacturers are bare of stocks.

The periodical droughts in Australasia have affected severely the wool industries, the sheep in many cases dying by millions; nevertheless, the annual supply of wool has shown a steady increase. New South Wales alone increased the number of her sheep during the year just closed fully 8,000,000, and the lowest estimate of the increase in the whole of the group that I have seen is 12,000,000. It is said, however, that Victoria, Tasmania, and New Zealand are fully stocked, and that the grazing capabilities of South Australia are not likely to increase unless a further supply of water is discovered. Western Australia, with its huge unwieldy territory, is almost at a standstill with something under 2,000,000 sheep, dry and barren country and poisonous plants preventing any increase of consequence. Speaking generally, it may be assumed that that part of Australia within the tropics is unsuited for the production of wool. In Queensland there is much country outside the tropics which is as yet barely stocked, and an increase of, say, 15,000,000 sheep may be looked for during the next twenty years. As regards New South Wales, it is difficult to estimate what is the average number of sheep it will carry. A good lambing season Mr. Findlay says would give this colony next year fully 56,000,000, or 15,000,000 more than the colony ever before faced a drought with. While it is certain that the capabilities of many parts of the colony can be increased by additional water supply, it must not be forgotten that the heaviest losses during the past drought were caused by want of grass.

SHEEP BREEDING.

Attention has been frequently drawn to the deterioration of sheep in many districts of Australasia, and there is now no longer any effort made to conceal the fact that they have for years been suffering from the want of fresh

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blood from other countries. The absurd quarantine laws which prevented the importation of arrivals from Europe and America have been repealed in most of the colonies. The stock conference which met in Sydney in October, 1886, strongly urged the removal of the restrictions, but none of the colonies took action until the latter part of 1887. South Australia, Queensland, and Victoria were the first to act, then followed New Zealand, Tasmania, and New South Wales, the last-named colony having removed the prohibitions during the present sessions of Parliament. The New South Wales act, I regret to say, does not admit of the introduction of sheep from the United States except by way of England. The reason given for this proviso is that the animals may have the benefit of inspection at an English port as well as upon arrival in Sydney. The absurdity of the regulation should be apparent to every one, as it is well known that not only sheep but live stock of all kinds are in much better condition in the United States than in any other country in the world. The law, however, as it stands, is a vast improvement upon the old one, as the latter prevented sheep being admitted from any country outside of Australasia.

The first shipment of sheep of any kind since the removal of the restriction arrived here early in February by way of London in the steamer *Port Pirie*. They came from Vermont; 161 were shipped, and I have been informed by the inspector of stock here that only one died during the voyage. The little flock was purchased for Mr. S. McCaughey, of Coonong, in the Uraba district, New South Wales, and consisted of 39 rams and 131 ewes.—SYDNEY, NEW SOUTH WALES, *March 20, 1888*.

G. W. GRIFFIN,
Consul.

REGULATION OF RAILWAY TARIFFS IN AUSTRIA.

[TRANSMITTED BY MINISTER LAWTON.]

The following statements treat exclusively of the supervision of railway tariffs by the Government, and enumerate the measures which the Austrian Government has thought proper to adopt in order to further the interests of the people who avail themselves of its facilities, the commercial community at large, and the companies.

In Austria 5,210 kilometers of railways are owned by the state and 8,234 kilometers are owned by private associations (joint stock companies). The measures adopted by the state for supervision are twofold; first, for state railways; second, for private railways.

AUSTRIAN STATE RAILWAYS.

All rates of freight and passenger tariffs on Austrian state railways are fixed by the minister of commerce. The approval or rejection of all important measures affecting the tariff, especially those of fixing the normal

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rates for passengers and freights, or proposals for the changing of rules and regulations, must be submitted to a board of commissioners.. [See supplement No. 1].

PRIVATE COMPANIES.

The control of the tariff of private railways, exercised by the state, is principally based upon the respective regulations given in supplements 2 and 3. The rates determined upon for freight and passenger traffic are subject to a revision every three years, and must be submitted for approval to the ministry of commerce and to the ministry of the interior.

In fixing the tariff due notice will be taken of the dividend-bearing character of the road and of the tariffs of neighboring lines. The prices must be made known publicly and the Government reserves to itself the right to require a reduction of rates if the net proceeds of the road exceed 13 per cent. of the paid in capital. [See supplements 3 and 4.]

It will here be necessary to call attention to the fact that the passenger rates on the state railways and on some of the private lines of 4 kreutzers in the first class, 3 kreutzers in the second classes, and 2 kreutzers in the third class for each person per kilometer, have been considerably reduced some time ago. All questions pertaining to the rates of tariff are left to the decision of the ministry of commerce, while all business connected with proposals for transportation is decided by the inspector-general of Austrian railways. [See supplement 6.]

The majority of private railways have their maximum rates of tariff given in their charters. Where this is not the case (local lines) the maximum rates are fixed by the ministry of commerce. Some private companies are bound to submit any proposed change of tariff within the above-mentioned limits to the decision of the inspector-general of the Austrian railways. The other companies, however, have the privilege to fix the rates within the legal maximum limits without being compelled to submit them for decision. Stipulated minimum rates do not exist. With the exception of the southern (Vienna-Trieste) and some local lines connected with it, there are some common general tariff rules including a common classification of goods. [See supplement 7.]

The ruling principles in the adoption of traffic agreements have been made known to the railway administrations at the instance of the convention of March 4, 1883. [See supplement 8.]

All rates of tariff, as well as supplements, must be submitted to the inspector-general of Austrian railways before their publication, at a time to enable that officer to make full examination before approved. Any traffic contract made by two or more parts of any railway system must also be agreed to by a commission consisting of representatives appointed for that purpose from each of the remaining roads forming such system. Abstracts must be made in cases of proposals for new tariffs or changes in the same, and the motives for their contemplated increase or reduction must be stated.

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The inspector-general examines them to see whether they conform with the general rules or the special regulations. A special approval of the tariffs, however, is required only for those private lines which are subject to the inspector-general of railways. The same rule applies to the joint tariffs in which such lines participate.

No special statistical reports, to serve as a basis for the examination of tariffs, are made. As far as such are required, the statistical publications issued by the Imperial and royal central commission on foreign commerce, and the annual statements of the chambers of commerce and boards of trade, will be consulted, and in some cases the desired information will be obtained from the reports of the separate railway companies. If the information thus obtained should be insufficient the required data must be supplied from special inquiries made, or through the chambers of commerce and boards of trade. New tariffs and supplements which do not increase the existing rates must be made known publicly fourteen days before their going into operation. Changes, however, by which the rates are increased, must be brought to public knowledge six weeks before they take effect.

A similar course must be taken when a tariff is canceled without the substitution of a new one. Reductions will not take place until three days after publication in a newspaper designated to this end by the ministry of commerce. The tariffs of the greater part of private lines will be valid for at least three months, and the statutes will regulate also when notice shall be served as to the time when they will cease to be in force. (See supplements 10, 11, and 12.)

In settling these, questions the principle laid down in the statutes of most railway administrations to grant no personal favors in such reductions of rates was strictly adhered to, which rendered it necessary that the terms should be made known publicly; that the time during which they are binding is limited, and that caution should be exercised against the adoption of terms which might have the character of personal favors. Goods intended for exhibitions, and live animals, are subject to a special tariff. The granting of reduced fares to corporations, societies, etc., which usually amount to 33⅓ per cent. of the normal rates, is subject to approval of the ministry of commerce on the roads which claim a subsidy from the state. The administration of the last named roads is also bound to this rule when granting free tickets for more than one single trip.

[TRANSLATION.]

The board of directors of Austrian state railways has published its statement for 1887. The state railways at the end of that year had a length of 5,409 kilometers and had received an addition of 322 kilometers, or 5.9 per cent., partly by the opening of new roads and partly by assuming charge of the greater part of the lines of so-called local railroad companies. The number of employés was 14,072, or 538 more than at the end of 1886, and the amount paid for salaries was 12,000,000 florins. The rolling stock consisted of 21,199 carriages, not including 160 carriages belonging to other parties and 806 loaned carriages.

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The following table shows the receipts and expenses of these 5,500 kilometers of railways as compared with 1886:

Railroads.	Receipts.		Expenses.		Surplus.	
	1887.	Increase over 1886.	1887.	Increase over 1886.	1887.	Increase over 1886.
	Florins.	*Florins.*	*Florins.*	*Florins.*	*Florins.*	*Florins.*
Total lines	47,304,000	2,643,000	27,844,000	700,000	19,459,000	1,942,000
Rudolfs Railroad	6,191,000	426,000	3,810,000	42,000	2,381,000	383,000
Western Railroads	30,978,000	1,251,000	17,222,009	428,000	13,755,000	822,000
Galician Railroad	3,818,000	587,000	3,060,000	211,000	758,000	376,000

As the capital invested in the total net-work (in which is included the Prag-Due and Due-Bodenbach railways as well as the Albrecht and the Moravian frontier) was 747,000,000.48 florins, the net receipts represent an interest of 2.6 per cent., and for the state railways proper, with an invested capital of 660,000,000.57 florins, the interest is 2.54 per cent.; for the Galician lines, with a capital of 61,000,000.64 florins, 1.23 per cent.; and the Western lines with the Rudolfs Railway, with a capital of 571,000,008.8 florins, yielded 16,000,000.13 florins or 2.82 per cent. To show the earnings of the state railways the statement gives a comparative table with the earnings of the lines whose securities are guaranteed by the state. From this it will be seen that seven different private railway companies so guaranteed in 1886 by the state, the aggregate invested capital of which was 323,000,000.9 florins, yielded net receipts of 7,000,000.03 florins or 2.17 per cent., while the roads owned by the state, as shown above, yielded 16,000,000 florins or 2.54 per cent. of the invested capital, amounting to 660,000,000.5 florins. The report goes on to say that the result is plainly not owing to the difference in the management between private and state railways; but aside from the larger amount of capital invested, chiefly due to the fact that the state railways transverse densely populated districts, with receipts of 15,000 to 20,000 florins per kilometer, while the others pass through districts yielding only 8,000 to 9,000 florins, and also that the running expenses, on account of the unfavorable grades, are much higher than on the older lines or those owned by some of the better situated private companies.

The expectation that the adoption of uniform rates of tariff for the transportation of certain staple articles over a large system of railways would have a favorable effect has been fully realized by the increase in freight earnings. These additional earnings were also to a great extent due to the increased transportation of grain caused by the proposed increase of the German grain duties. Stress must be laid on the fact that in this unusual period of export the Arlberg railway has fully met the expectation which was entertained respecting its capabilities. The freight carried over this road in 1887 amounted to 447,000 tons, exceeding the estimates made by 47,000 tons without at any time straining its capacity. The report further says: While, therefore, the expectations have been apparently realized which were entertained regarding the introduction of tariff measures on the state railways, the fact must also be mentioned that the complaints made by other roads of alleged excessive reduction of tariff rates have almost entirely ceased. The reason for this is evidently the more favorable turn which business has taken and the increase in their receipts during the continuation of the state railway tariffs, proving that the previous decrease of receipts was not owing to these tariffs. The large earnings of the Northern Railway and the Buschtierather road, which have also adopted the State Railway tarift rates, prove their benefit still more forcibly.

Passenger as well as freight traffic shows an increase of business and larger receipts in 1887. The number of passengers carried over the entire system was 18,000,000, of whom 12,210,000 florins were collected for fares, which shows an increase of 102,589 passengers or .57 per cent., and of receipts of 284,789 florins or 1.96 per cent. Freight traffic in 1887

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amounted to 12,100,000 tons, of which 11,200,000 were car-loads, and shows an increase over 1886 of 1,190,000 tons or 10.9 per cent. Receipts were 33,700,000 florins (28,000,000 florins for car-loads) and were 2,180,000 florins or 6.92 per cent. more than in 1886. The western state railways show an increase in receipts of 1,500,000 florins, of which 1,200,000 florins are for grain freights. The largest classes of freight carried were brown coal, 3,370,000 tons; coal, 1,200,000; grain, 1,100,000; and timber, 1,050,000 tons.

The expenses amounted to 24,742,849 florins, or 621,027 florins (equal to 2.57 per cent.) more than in 1886, as will be seen from the following table:

Description.	1887.		Against 1886.
	Florins.	*Per cent.*	*Florins.*
Administration	524,410	2.12	— 48,824
Repairs and supervision	7,327,487	29.61	+ 298,485
General traffic	9,141,815	36.95	— 120,483
Workshops	7,749,137	31.32	+ 491,845
Total	24,742,849	100.00	+ 621,027

The item "administration" shows a decrease, resulting from a reduction in the number of employés; and in "general traffic," from savings effected by the discontinuance of the chief bureaus at Budweis and Spalato. The proportion of the expenses for running the road to the transportation receipts was 52.32 per cent., against 52.67 per cent. in 1886.

A comparison of the net earnings of the state railways with the estimates shows a surplus of 3,020,000 florins. The directors point to this fact with great satisfaction, as this surplus served to cover the deficits of 1881 to 1885, which called for a supplementary credit of 3,200,000 florins.

The total result of the traffic is shown by the amount of Government subsidy furnished for the payment of interest and mortgages. After collection of the net receipts in 1887 the state treasury still had to pay 10,380,000 florins, while in the preceding year 12,200,000 were paid. The report further shows that if the management had not been transferred to the state an additional 588,017 florins as subsidy would have been paid out of the treasury between 1881 and 1887. Another calculation shows that from 1881 to 1887, under the state management, the subsidy paid by the Government amounted to 12,536,657 florins, while from 1876 to 1880, when the lines were run by private companies, the sum paid by the state was 13,247,163 florins.

How much the decrease in the amount of subsidy necessary after the roads passed under state management is due to the increased briskness of general business, is answered by a table giving the sums which the state paid from 1876 to 1887 to private companies which still enjoy a state guaranty. From this it appears that in 1880 these guaranties amounted to 4,900,000 florins, while in 1887 they had risen to 7,200,000 florins, or an increase of 2,200,000 florins. Further, that from 1881 to 1887 the average annual sums paid for guaranties were 590,817 florins more than from 1876 to 1880. From this, concludes the report, it would appear that the state railways have not been favored by a general improvement in traffic; on the contrary, with the exception of the great export year 1880, and from September to November, 1887, the whole period of state management may be characterized as one of general depression of business.

When this and the many other difficulties necessary to a change of management are taken into consideration, and it is observed how well the financial reports of these railways for 1887 (the seventh year of their operation) bear comparison with previous statements, it may be certainly hoped that the future of these roads under state management is assured.

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AMERICAN TRADE WITH EGYPT AND THE LEVANT.

IMPORTS FOR THE UNITED STATES.

Owing to trade with this part of the world being mainly in the hands of English merchants, dependent upon English shipping, it is impossible to make correct estimates of the quantities or values of supplies in its make-up drawn from the fertile and attractive fields of American production. The superiority of many American manufactured articles over those from other countries is not a new admission. Their fame goes before them, and wherever introduced they become such favorites as soon to be recognized as necessities. Attempts are often made to supercede them, and for a time such attempts may be successful, but the triumph is co-extensive alone with thorough test and the opportunity to reinstate the American products. Such supersession is mainly the outcome of a lack of direct trade with the United States. American cotton goods, for instance, were many years ago freely disposed of in the East, while now they are unknown in its commerce. Had not American shipping, by means of home legislation, been driven from foreign waters, this supply might have been maintained, even in the face of another serious drawback. The English mill owners now buy American cotton and meet a demand with its manufactured products the profits of which might be directed towards the amelioration of home industries which periodically languish almost to destruction. The peoples of the East would be glad enough to buy American cotton converted into cloths by American machinery, but they do not. They fail to consume American goods because there is no direct trade; and there being no direct trade the American genius for introduction is not manifest abroad. Golden opportunities are constantly being wasted. With rapid transit between American and Eastern ports, through which quick returns could be secured, they would not all be thrown away.

In spite of serious drawbacks to trade, some is maintained through the superlative merit of certain American products. American petroleum was for many years almost driven from the East by the Russian product, supplied at a lower price; but the superiority of the former assists it, and the ground lost is steadily being regained. American refined oil, shipped direct from the United States to Egypt, from January 1 to December 31, 1887, reached very nearly 4,000,000 gallons, while some small shipments coming from England swelled the supply to more than the above-named sum. Of American canned goods, a large supply comes eastward from English shippers; hence they are accredited in trade as English goods. American vegetables, fruits, and meats are sold everywhere in Egypt and the Levant, and so is American bacon and lard, all shipped from Liverpool and London, and set down in the trade reports as English products. Of alimentary animal prod-

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ucts there were imported into Egypt from January 1 to December 31, 1887, quantities valued at $1,137,000. Is it not reasonable to presume that, while Europe draws upon America for meat products, Egypt could be supplied by direct shipments from home more cheaply than from other countries where production does not satisfy consumption. Much of the product, however, thus consumed in Egypt, as in the Levant, is drawn from America, paying in its transportation eastward probably as much, if not more, profit to the English trader than it paid the American producer and manufacturer. The gain of the former would, with direct, quick transit from the United States, approximate additional American gain.

Of preserved fruits and vegetables Egypt imported in 1886 a total valued at over $300,000, while in 1887 their importation fell to a little over $200,000. For the corresponding years the importation of cereals and vegetables amounted to over $1,000,000 and $500,000. Egypt imports annually over $200,000 worth of candles. Of woods for construction Egypt imports annually about $1,600,000 in value, and about $500,000 in charcoal. A vast amount of this wood is transported in ships all the way from Sweden and Norway—further than to the more accessible forests of Maine, North Carolina, and Florida. An embargo has been placed upon the production of tobacco in Egypt. This crop was annually about 6,500,000 pounds, while consumption reaches 13,000,000 pounds. Hereafter, therefore, the importation of tobacco must approximate the last-named sum. Will America refuse to be a competitor for this supply?

EXPORTS TO THE UNITED STATES.

Other items of import, to which American producers might add their quota, could be presented, but I will devote a few lines to an export trade which, with direct transit, could be increased to most respectable proportions. Already a large trade is done with the United States in Egyptian rags and other waste materials used in the manufacture of papers, cotton, raw hides, senna, bones, gums, furniture, curios, musk, cigarettes, precious stones, carpets, and rugs. For the commercial year ending June 30, 1887, the declared exports for the United States represented a value of $257,469.91. The increase for the present year will be considerable; and yet the figures of declared exports by no means represent the real values of Egyptian exports which find their way to the United States. Trade follows the same course in both directions, and much which Egypt sells elsewhere is credited in trade statistics to England. As an example onions may be cited. During the year ending June 30, 1887, there was a declared export of Egyptian onions for the United States valued at $12,731.29. For the present year, the shipping season having already ended, the same declared export of onions amounts to $28,808.89, and I am informed by those interested in this trade that quantities of Egyptian onions are sent to the United States from England, where they are shipped during their season in very large quantities. Even the shipments declared here for the United

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States go by steamers via London and Liverpool as do all other declared exports excepting rags and other waste material for paper stock which find transport in Norwegian vessels engaging in lumber transportation. The sending of Egyptian onions to the United States is a new and, I am informed, profitable venture. The object is to put them very early on the market while prices rulé high, and the Egyptian product being superior in quality as well as in appearance commands the very highest prices. The shipments begin in March and end in April. In April of this year 850 tons of onions were declared at Alexandria for the ports of New York and Boston. Direct shipments by steam another year would probably be three or four times as great.

DIRECT TRADE.

In presenting inducements for direct trade, by steamer, with eastern Mediterranean ports, I have specialized trade with Egypt. Statistics show that trade between Syria and the United States is considerable. A line of steamers plying between New York, Egypt, and Levant would do what all other steamers in the trade do. They would touch at an Italian port, at Malta, and probably at a French or Spanish port, taking regular freight at all. With passenger accommodations they would carry many voyagers between the East and the West, especially since Egypt is now so popular with Americans as a winter resort. Italian emigration would largely aid in swelling receipts. In presenting the question of direct communication, for purposes of trade between the United States and the East, I reflect a very widespread desire. Many merchants here, comprehending fully the conditions of trade, assert that direct steam communication would be sustained. Such communication, however, should not be spasmodic, but regular and reliable. With this sort of service, and soliciting agents for leading and reliable American producers and manufacturers, there is not a doubt about the trade. It pays English, French, Italian, and other merchants enormous profits, and it sustains huge steamship companies. With the vast, varied, and valuable products of the United States it is senseless to presume a profitable trade could not be established and maintained. Our products, after introduction, would be greedily sought after, and a mutuality in commerce would spring up which, because of the desirability of things interchangable, would last.—CAIRO, EGYPT, *June 4, 1888.*

JOHN CARDWELL,
Consul-General.

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INDUSTRIAL SCHOOL AT REICHENBERG.

This academy, founded by the imperial and royal ministry of schools as a technical academy of the middle grade, is a combination of several industrial schools having, however, different aims. Their purpose is the intelligent theoretical education of young men for important industrial positions, and also the training of those who hope to become manufacturers, in order that they may be able to compete with modern methods. The aim of the school is to elevate home industry to a point of complete intellectual independence of other countries and the improvement of technical work.

The academy is divided into a high school and a workmaster's school, and each of these is subdivided into three branches, architecture, mechanical arts, and chemical technics.

HIGH SCHOOL.

This teaches, through systematically-arranged lectures, all that is necessary for practical industrial work, and at the same time affords a high grade of general education, so that students become qualified to manage a technical trade on a large scale or to fill important positions in large factories. The Government encourages this course by exempting those who pass it from more than one year's service in the army.

The three branches of the high school are:

1. A school for architecture for future architects, engineers, masons, carpenters, etc.

2. A mechanic's technical school for future manufacturers, managers, technologists, the different branches of mechanics, machine architecture, metal and wood work, spinning and weaving mills, etc.

For those students who intend to devote themselves to textile industry there is a special course for the theory and practice of weaving. This course is connected with the weaving school. For the electro-technologists exists an electro-technical laboratory.

3. The chemical school for manufacturers, managers, and technologists in the different branches of the chemical trade, and for manufactures, as calico printing, bleaching, sugar manufacturing, glass and earthenware fabrication, etc. For the chemical branch of the textile industry there is a dyeing school with its own dyeing laboratory.

Instruction in the general preliminary sciences are given to the students of the three classes together, but special instruction for special trades is given separately to those students following each special course. Each class has a four years' course. Entry in the first course is allowed if a certificate can be shown that the applicant has passed the three classes of the public school, the third class of a polytechnic school, or gymnasium where drawing has been obligatory. Students may enter the second class who can produce a

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certificate of ability to enter the fifth grade of a polytechnic school or gymnasium where drawing is obligatory. New students must pass an entrance examination before the beginning of a semester upon the following branches:

FIRST ANNUAL COURSE.

Arithmetic. — Elementary calculation with whole numbers, common and decimal fractions, metrical weights and measures, squares and cubes of numbers, square and cube root.

Geometry. — Calculation of angles of plane surfaces and of irregularly shaped objects, curves, etc., mensuration.

Natural science. — Knowledge of the more important physical manifestations.

SECOND ANNUAL COURSE.

Arithmetic. — Calculation with whole numbers and fractions, using the most important advantages of reckoning; the four methods of calculating, addition, subtraction, etc.; ratio and proportion; equations of the first degree with one unknown quantity.

Geometry. — The more important theorems of planimetry and the demonstrations of simple construction problems.

Physics. — The more important physical methods with special regard to sound, light, magnetism, and electricity.

Chemistry. — Chemical elements and their most important combinations; familiarity with the common chemical formulas.

Drawing. — Drawing from sketches and geometrical figures; practice in handling the brush and color; the execution of simple geometrical construction with compass and ruler.

Candidates may be excused from examination on these branches upon the production of a proper certificate of their last school year and the drawings then made if up to the requirements. Consideration will be had in those cases where scholars have not had the opportunity to sufficiently practice drawing with regard to their entrance in the second class if it is thought that the pupil can obtain excellence in the trade school.

The number of students which can be accepted is always published before the examination. In deciding as to admissions the results of the examinations will first be considered and then the date of the application. In order to see whether students have reached the standard which is the aim of the school, examinations take place at the end of the course of the high school, and the testimonials issued are equal to those issued by the middle schools, including the privilege of serving only one year in the army. As extraordinary students are admitted those who can prove by a proper certificate from a middle school a good preliminary education. Instruction commences always in September. The fees amount to 8 florins ($3.20) for six months. The ordinary students of the chemical school must pay 15 florins ($6) per semester for the laboratory; extraordinary students 25 florins ($10). Those without means are free.

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WORKMASTERS' SCHOOL AND SCHOOL OF ARCHITECTURE.

The three professional schools included in this department of the academy offer to such tradesmen who have already worked in architecture or in some branch of mechanics or chemistry the opportunity to speedily obtain theoretical knowledge and practice impossible to acquire in the trades, but absolutely necessary in the close competition of the present day.

The three schools are:

1. The school of architecture for stone-masons, architects, carpenters, tinsmiths, brick-layers, etc.

2. The mechanical school for machinists, locksmiths, mill-constructors, foremen of mechanical weaving and spinning mills, etc.

3. The chemical school for dyers, printers, bleachers, tanners, soap manufacturers, etc.

The mechanical and chemical courses are of two years' duration without interruption. The course on architecture extends over four winters, each term being six months. Students of the latter school may therefore continue their occupations during the summer. The conditions for entering these schools are, first, a proof of having passed the public school and of having practiced at least two years a trade. For entering the school of architecture a proof of one year's practice in architecture will be sufficient.

It is recommended to those who have already entered a trade or manufactory, but who are not able to rise from their present condition, to enter the school for workmasters, especially if they are called upon to continue the business of their fathers, as so often occurs in this locality. The course for both departments of this school begins on September 16; for all courses of the school of architecture on October 15. The fee amounts to 6 florins ($2.40) per half year. The laboratory tax is 6 florins for ordinary scholars and 17 florins ($6.80) for extraordinary scholars. Those without means are free.

The imperial and royal ministry of education has established 33 half yearly scholarships, amounting to 30 florins ($12) each. The Reichenberg Chamber of Commerce gives 300 florins ($120) annually for the same purpose, as does also the Reichenberg savings bank. There is also a scholars' supporting society to provide for other needs.

PLAN OF INSTRUCTION OF THE HIGH TRADE SCHOOL.

OBLIGATORY BRANCHES.

First annual course.

German language.— Five hours weekly. Review of etymology and syntax; orthography with practical exercises; reading of descriptive and narrative tales; verbal description of the same as well as written exercises; letter writing; every fortnight school and home work.

Geography.— Review of mathematical and physical geography; special geography of Europe, especially of the Austro-Hungarian Monarchy; hydrographical and climatic conditions of other parts of the world.

Algebra.— Five hours a week. The four principal calculations; vulgar fractions; equations of the first degree; once every fortnight school and home work.

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Geometry. — Four hours a week. Plane geometry with exercises.

Geometrical drawing. — Four hours a week. Exercise in geometrical construction; projection of points, lines, and simple objects.

Experimental physics. — Four hours a week. The most important physical theorems with special regard to sound, light, magnetism, and electricity.

Chemistry. — Three hours a week. The most important elements and their combinations with special reference to their natural occurrence, but without going closely into theory and without special regard to the various reactions.

Free-hand drawing. — Six hours a week. Copying elementary and geometrical objects and the use of color.

Second annual course.

German language. — Three hours a week. Reading of translations of the classical poetry of the Greeks and Romans; reading and explanation of parts of the new German literature, including information as to the three chief kinds of poetry, accompanied by written exercises; important business letters; every fortnight school work, and every month home work.

History and geography. — Three hours a week. Ancient history, especially of the Greeks and Romans; special consideration of historical facts, with consideration of the geography relating to them.

Mathematics. — In the first semester ten and in the second six hours a week.

Algebra. — Short review of the standard theorems and equations of the first degree; system of involution and the radicals; equations of the second degree; logarithms and their uses; progression; compound interest.

Geometry. — Review of plane geometry; geometrical calculations and the construction of algebraic sentences; plane trigonometry and stereometry; every two weeks home work, and every week school exercise.

Physics. — Four hours a week. Review of the most important standard theorems; statics and dynamics of solid, fluid, and gaseous substances; heat and acoustics; optics; experimental and with scientific proof; basis of meteorology.

Chemistry. — Four hours a week. Chemical fundamental laws; atoms and molecules; the elements and their combinations; basis of organic chemistry.

MECHANICO-TECHNICAL DEPARTMENT.

Descriptive geometry. — Nine hours a week, including the technical department. Most important systems of shadow, perspective, etc.

Mechanics. — Four hours a week in the second semester, together with the chemico-technical department. Determination of the center of gravity; simple machines; elements of hardness; every fortnight home work.

Free-hand drawing. — Six hours weekly. Copying of geometrical objects after models; mechanical drawing.

DEPARTMENT OF ARCHITECTURE.

Descriptive geometry. — Nine hours weekly, together with the mechanico-technical department.

Architecture. — Four hours a week. The connections of stone and wood.

Free-hand drawing. — Six hours a week. Drawing after plastic models, especially the ornamental motion on architectural arrangements.

CHEMICO-TECHNICAL DEPARTMENT.

Descriptive geometry. — Three hours a week. Conclusion of the system of projections; the most important matters relative to turnings, cuts, and penetrations.

Mechanics. — In the second semester four hours weekly, together with the mechanico-technical department.

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Free-hand drawing.—Six hours weekly with the mechanico-technical department.

Mineralogy and geognosy.—Three hours a week. Knowledge of the most important minerals; systems of geognosy.

THIRD ANNUAL COURSE FOR ALL OTHER DEPARTMENTS.

German language.—Three hours a week. Reading of prosaic selections of lyrical and didactical poetry; exercise in lecturing and using the matter read for written exercises; every fortnight school work, and every month home work.

History and geography.—Three hours a week. History of the middle ages and the present up to the Westphalian peace, with explanation of the condition of culture at that time; repetition of the respective parts of geography in general; view of the present condition of production and industry of Europe and the other most important parts of the world.

Mechanico-technical department—Mathematics.—During the first semester five hours a week; during the second, two hours; review of the former exercises; instructions on curves; the "degrees of flatness;" conic sections; cyclical curves; the spirals; every fortnight home work on mathematics or mechanics.

Mechanics.—Four hours in the first semester and seven hours in the second, weekly; resolution and composition of forces in space; the common conditions of equilibrium for free and supported objects; repetition and extension of the elements of hardness; dynamics of solid objects; elements of shock.

Construction of machines.—Sixteen hours weekly (four hours lectures and twelve hours drawing). Construction of parts of machines.

Mechanical technology in general.—Four hours lectures and two hours drawing, weekly. Technology of iron and wood, with special regard to machinery and tools; drawing after sketches and drawing of tools; machines for tools.

Chemical technology.—Two hours a week, together with the architectural department. Technology of clay; class of gypsum and plaster; principles of the distillery, brewery, and sugar manufactory; lectures to students of the textile branch of the mechanical department on heating, lighting, and the chemistry of fabrics; elements of dyeing and printing; plaster materials; varnish and cement.

ARCHITECTURAL DEPARTMENT.

Architecture.—Fifteen hours a week (four hours lectures, eleven hours drawing). Continuation of instruction in the construction of building, including all those works which are necessary for constructing a building, *i. e.*, groundwork, the work of the mason, carpenter, tile-layer, tinsmith, and locksmith, building materials, etc.

Building mechanics.—Four hours a week. Revolution and composition of forces; theory of weights and hardness, and their use in building; mechanical work; the windlass.

Architectural etymology.—Six hours a week. Explanations as to pillars; shape of moldings in general; socle, brace, parapet, and main moldings; profile of door and window frames, using the shadow in drawing; directions for whole façades.

Chemical technology.—Two hours weekly, together with the mechanico-technical department.

Free-hand drawing.—Six hours a week. Drawing from plaster casts; etymology, with special regard to ornamental work for architectural decorations; drawing with the pen.

CHEMICO-TECHNICAL DEPARTMENT.

Chemistry in general.—Eight hours a week during first semester. Inorganic chemistry, with the scientific foundation of chemical theories; completion of the instruction given in the second annual course by the discussion of the rarer elements and chemical combinations, the knowledge of which is necessary for the study of analytical and technical chemistry; closer attention to chemical reactions; organic chemistry in the same manner.

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Technical chemistry and chemical technology.—Eight hours a week. Natural waters: Examination and purification of the same in large quantities; extraction of the various chemical products, as metalloids, acids, salts; manufacture of gunpowder; technology of chalk, gypsum, and plaster; manufacture of glass and earthenware; fuel and firing.

Practical exercises in the chemical laboratory.—Twenty hours a week. Lectures on analytical chemistry, including qualitative analysis; chemical preparations, and the demonstration of easy quantitative laws.

Mechanics.—Two hours a week. Geodynamics; balance and the movement of fluids and gases.

Knowledge of machines.—Three hours a week. Explanation of appliances used for calculating and measuring purposes; necessary instruction regarding their construction; explanation and construction of the most important parts of a machine.

FOURTH ANNUAL COURSE FOR ALL DEPARTMENTS.

German language.—Two hours weekly. Reading of dramatic poetry, with brief instruction as to its development; view of the development of literature; written exercises, discourses, etc.

History and geography.—Three hours weekly. History of modern times, since the Westphalian peace, with special regard to the progress of culture; view of the present European condition of culture and methods of traffic; outlines of the Austrian constitution and administration.

MECHANICO-TECHNICAL DEPARTMENT.

Theoretical and practical mechanics.—Eight hours weekly in the first semester, seven hours in the second. Mechanical communications and the most used mechanisms; hydraulics; theories of water motors, pumps, and ventilators; mechanical theory of heat, with reference to gas and steam; theory of the steam-engine and of caloric machines; school and home exercises.

Machine building.—Seven hours weekly in the first semester and eight in the second. Construction of pulleys, windlasses, presses, pumps, water-wheels, turbines, etc.; of steam-boilers, engines, gas-receivers, steam steering, etc.; the most facts relating to the construction of tool machines.

Mechanical drawing.—Eleven hours weekly. Construction of connecting parts of machines; construction of machines after given sketches.

Special mechanical technology.—Four hours a week; also lectures for those students of the chemico-technical branch of the textile industry. Spinning and weaving, with regard to the construction of the respective machines; finishing machines; paper manufacturing. Students of the mechanico-technical department have also two hours weekly of technological drawing, in which drawing and sketching of the respective machines are included.

Agriculture and drawing.—Two hours weekly, together with the chemico-technical department.

Surveying.—Two hours weekly in the first semester. The most important measuring are leveling instruments; practical exercises.

ARCHITECTURAL DEPARTMENT.

Architecture.—Twenty-four hours weekly in the first semester and twenty in the second. Lecture, with exercise in sketching, six hours a week; inside house finishing, joiners', locksmiths', painters', glaziers', potters,' paper-hangers', gilders', sculptors', and tile-layers' work; heating, etc.; water, gas, and telegraph; water-closets and drains; iron building construction.

Management while building.—Plans and specifications; building contracts; explanation of laws relating to building; presentation of the various kinds of buildings for town and country most in vogue, with explanations.

Drawing.—Eighteen hours a week. Sketching agricultural, industrial, and town buildings after given programmes.

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Style of buildings. — Two hours a week. The special signs of style in regard to the ornamental and construction details, as the oriental style, Greek and Roman style, with their most important monuments; characteristics of the Byzantine and Mohammedan style of building; the Roman and particularly the gothic style of architecture; explanation of the Italian renaissance and that of other countries; short study of the best buildings of the eighteenth and nineteenth century.

Building mechanics. — Two hours a week. Continuation and conclusion of the third year course.

Surveying. — Four hours a week in the second semester. Explanation of the most used measuring and leveling instruments; practical exercises in laying out and leveling.

Free-hand drawing — Six hours a week. Drawing and sketching of ornamental details of buildings in full size, with the aid of plastic sketches.

CHEMICO-TECHNICAL DEPARTMENT.

Technical chemistry and chemical technology. — Six hours weekly. Metallurgy; metal preparations in colors; Organic dye-stuffs and colors; dyeing, printing, and bleaching; agriculture; visits to manufactories and workshops.

Practical exercise in chemical laboratory. — Twenty-two hours weekly. Continuation and conclusion of third annual course.

Knowledge of machines. — Three hours a week. Use of motors and measurement of water-power; description and explanation of vertical and horizontal water-wheels and those for a column of water; the use of steam power; production of steam; description and explanation of steam-engines.

Mechanical technology. — Four hours weekly, together with the mechanico-technical department of the third and fourth annual course.

Architecture. — Two hours a week, together with the mechanico-technical department.

FREE BRANCHES OF INSTRUCTION.

Stone-cutting. — In the winter semester three hours weekly for scholars of the third and fourth annual course of the architectural department.

Modelling in clay, gypsum, wood, and stone three hours a week.

Book-keeping, office work, and correspondence. — The most important questions on bills and the rights of exchange.

Plan of instruction of the special course in theoretical and practical weaving. This course is for those students of the mechanico-technical department who devote themselves to the textile industry, and comprises the following courses:

Theory of weaving. — Three hours weekly in the third annual course and one hour in the first semester of the fourth annual course. The three principal kinds of bindings for cotton, worsted, and carded yarn weavings; composition of cotton, woolen, and mixed weavings; stitched goods; yarn calculations.

Practice of hand weaving. — Two hours weekly in the third and fourth yearly course. Working on hand looms with treadles, shaft, and jacquard machines.

Theory of mechanical weaving. — One hour a week in the first semester of the fourth annual course. Principle of the hand loom; theory of the bindings; mechanism of the loom; the instruction is combined with that of mechanical technology.

Practice of mechanical weaving. — Two hours a week in the fourth annual course. Weaving on different mechanical looms; construction and taking apart of such looms.

PLAN OF INSTRUCTION OF THE WORKMASTERS' SCHOOL.

Mechanico-industrial department. — First semester.

German language. — Four hours a week. Exercise in reading; explanation and discussion of the etymology and orthography.

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Geography. — One hour weekly. Classification of the surface of the earth; the different governments of Europe; topography and conditions of culture of the most important states, especially of Austro-Hungary.

Calculating. — Six hours a week. Calculating with whole numbers and fractions, both decimal and vulgar; extraction of square and cube roots; instruction regarding simple and combined rules of proportions; school and home work.

Geometry. — Five hours a week. Plane geometry.

Projections. — Eight hours weekly and continued in the second semester. Exercises in geometrical drawing, projections of lines, surfaces of objects, sections and penetrations, shadow constructions.

Free-hand drawing. — Eight hours a week.

Natural science. — Four hours a week. The most important physical lessons; lessons on mechanics, heat, sound, light, electricity, and magnetism; the most important chemical elements and the combinations which are most used.

Mechanical technology. — Four hours a week. Metal and wood work; tools; tool machines.

SECOND SEMESTER.

German language. — Three hours a week. Continuation of reading and reciting of short poems.

Orthographical exercises. — With consideration of words of foreign origin most used in industrial life.

Office work. — One hour weekly. The most important letters of a tradesman, with explanation of their purpose and the laws relating to them.

Geometry. — Four hours a week. Conclusion of plane geometry; calculation of the size of objects.

Algebra. — Four hours a week. Principal algebraic rules; equations of the first and second degrees.

Natural science. — Four hours a week. Continuation of the first course.

Machines. — Five hours weekly (continuation of the third course). Lifting machines, windlasses, pumps, and ventilators.

Free-hand drawing. — Six hours a week.

Projections. — Eight hours a week. Continuation of first course.

Mechanical drawing. — Six hours weekly. After sketches and models.

THIRD SEMESTER.

German language. — Two hours weekly. Reading and explaining of grammatical specimens, chosen according to the future profession of the scholars; written exercises, especially simple descriptions.

Business letters and industrial book-keeping. — Two hours weekly. Declarations and petitions, with laws relating thereto; principal ideas of bills of exchange; opening and keeping of the most important books, with exercises in entering the principal business matters.

Surveying. — Two hours weekly. The most important surveying and leveling instruments; practical exercises.

Mathematics. — Four hours a week. Lessons in involutions, as far as necessary to understand logarithms; exercise in using logarithms; elements of plane trigonometry.

Mechanics. — Eight hours a week. Mechanics of solid objects.

Mechanical drawing. — Twelve hours weekly. Drawing of parts of machines after given rules.

Engineering in general. — Three hours weekly; continuation in fourth course. Firing; boilers; steam-engines and their management; water motors and motors for retail trades.

Special mechanical technology. — Four hours a week lectures and four hours technical drawing (continuation in fourth course). Spinning and weaving, and engineering connected therewith; paper manufacture; drawing and sketching of machines used.

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FOURTH SEMESTER.

Mechanics. — Ten hours a week. Mechanics of water and gas; laws of Gay-Lussac and Poisson, and the use of same, especially for the mechanics of motors.

Engineering in general. — Three hours a week. Continuation and conclusion of lectures of the third semester.

Special engineering. — Three hours a week. Tool machines; thorough knowledge of machinery, and speed of the same; supply of force.

Special mechanical technology. — Six hours weekly. Continuation and conclusion of the third course.

Mechanical drawing. — Eighteen hours a week. Continuation of drawing of parts of machines; drawing of whole machines after copies. Lectures on engineering include the construction of mills, breweries, distilleries, etc.

WORKMASTERS' SCHOOL FOR THE CHEMICAL TRADE.

FIRST SEMESTER.

German language. — Four hours weekly. Same as in the workmasters' school for the mechanical trade.

Geography. — One hour weekly.

Reckoning. — Six hours weekly. Calculation with whole numbers, common and decimal fractions; extraction of square and cube root; lecture on proportions; simple and combined rules of proportion; school and house work.

Geometry. — Five hours weekly. Plane geometry.

Physics. — Four hours weekly. Lectures; discoursing on mechanics, heat, sound, electricity, and magnetism.

Chemistry in general. — Twelve hours a week. Inorganic chemistry; principal chemical fundamental laws; the more important elements and their combinations with the further consideration of technical chemistry.

Free-hand drawing. — Eight hours weekly. Drawing of simple objects, partly after copies, partly after models; sketching parts of machines, etc.

SECOND SEMESTER.

German language. — Three hours weekly, as in the second course of the mechanical workmasters' school.

Business matters. — One hour weekly, as in the second course of the mechanical workmasters' school.

Algebra. — Four hours a week. Fundamental theorems; equations of first and second degrees.

Geometry. — Four hours a week. Conclusion of plane geometry; calculation of size of objects.

Physics. — Four hours a week. Continuation of lectures of first course.

Chemical technology. — Eight hours a week. Water examination and purification of same for industrial purposes; extraction of various chemical products for manufacturing purposes; fuel and heating; lighting.

Practical studies in the chemical laboratory. — Eleven hours weekly. These include qualitative analysis and some quantitative laws; lessons in analytical chemistry (continuation in third course).

Free-hand drawing. — Four hours a week.

THIRD SEMESTER.

German. — Two hours weekly, as in third course of the mechanical workmasters' school.

Business letters and industrial book-keeping. — Two hours weekly, as in third course of the mechanical workmasters' school.

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Physics.— Four hours weekly. Review, especially of the mechanics of fluids and gases of special importance to professional chemists.

Mineralogy.— Three hours weekly (optional). The most important minerals after the crystallographical; physical and chemical theorems; practical exercises.

Chemical technology.— Six hours weekly. Dyeing substances and dyes; dyeing, printing, bleaching, agriculture, tanning, soap manufacture, etc. Lectures are completed and illustrated by visiting various manufactories.

Practical studies in the laboratory.— Twenty-one hours weekly. Continuation of lectures of the second course; chemical experiments.

Mechanical technology.— Four hours a week, with the students of the chemico-technical department of the high school.

FOURTH SEMESTER.

Physics.— Four hours weekly. Practical exercises.

Mineralogy.— Three hours weekly. Continuation of lectures of the third course; discussion of such subjects as relate to the future professions of the students.

Practical studies in the laboratory.— Twenty-four hours weekly. Examination and explanation of such chemical products as are used in the students prospective profession.

Description of machines.— Three hours a week. Firing; construction of boilers, steam and water motors; pumps, pusses, ventilators; motors for retail trades.

Mechanical technology.— Four hours weekly. Continuation of lectures of the third course.

PLAN OF INSTRUCTION OF THE SCHOOL FOR ARCHITECTURE.

FIRST SEMESTER.

German.— Four hours weekly, as in the workmasters' school.

Geography.— One hour weekly, as in the workmasters' school.

Calculations.— Six hours weekly. Calculating with whole numbers, common, and decimal fractions; extraction of square and cube roots; theory of ratio and proportion; school and home work.

Geometry.— Five hours weekly. Plane geometry.

Theorems on projections.— Eight hours a week. Geometrical drawing; projections of lines, flat objects, penetrations; axonometrical projections.

Natural science.— Four hours weekly, together with the mechanical department.

Free-hand drawing.— Eight hours weekly. Elementary free-hand drawing of plastic ornaments; exercises in choosing colors for use on flat surfaces.

Architecture.— Four hours a week. Stone and wood framing.

SECOND SEMESTER.

German language.— Three hours a week, as in the workmasters' school.

Business letters.— One hour a week, as in the workmasters' school.

Geometry.— Four hours a week. Conclusion of plane geometry; calculation of the size of objects.

Projections.— Eight hours weekly. Continuation of the first winter course.

Architecture.— Thirteen hours a week (lectures and drawing). Stone and wood construction; vaults, staircases, ceilings, floors, plastering, roof-supports, and tile-laying.

Architectural etymology.— Two hours a week. Elements of molding.

Free-hand drawing.— Eight hours weekly. Continuation of exercises of the first course; drawing from models especially relating to architecture; sketching.

THIRD SEMESTER.

German.— Two hours a week. As in the workmasters' school.

Business letters and industrial book-keeping, as in the workmasters' school.

Surveying.— Two hours weekly. The most important measuring and leveling instruments; practical exercise in surveying buildings and building grounds.

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Algebra.— Four hours weekly. The four elementary rules; equations of the first degree, with one or several unknown quantities; equations of the second degree.

Architecture.— Fifteen hours a week (lectures and drawing). Scaffolding, carpenters', painters', glaziers', and locksmiths' work; heating and ventilation; water-closets and sewers, wells, and fountains.

Architectural etymology.— Six hours a week. Pillars, with special consideration of the Roman style; instructions as to moldings, windows, and doors; making up facades of buildings, and details of same.

Free-hand drawing.— Eight hours a week. Continuation of drawing from models; sketching.

FOURTH SEMESTER.

Building mechanics.— Four hours a week. Important facts on statics and hardness, with special use of graphical methods; calculations as to the size and strength of pillars, arches, vaults, and simple roofing.

Architecture.— Four hours weekly. Iron construction; construction of town and country buildings; specifications; building regulations.

Sketching.— Twenty-one hours weekly. Sketching of town and country buildings after given plans.

Free-hand drawing.— Ten hours weekly. Architectural sketches after copies; drawing details of facades in actual size for use in projected buildings, with the use of copies and models.

In addition to the foregoing schools there is yet a school for the benefit of tradesmen who are obliged to look after their work during the day, but who have elementary knowledge, such as is taught in the public schools. This school is open at night on week days and in the morning on Sundays and holidays. Instruction relates first to the teaching of drawing and modeling, in which each scholar is instructed to copy objects relating to his particular trade. This school is called the

PROGRESSIVE EDUCATIONAL SCHOOL FOR INDUSTRIAL DRAWING AND MODELING.

Instruction is divided into two annual courses. The first teaches —

Free-hand drawing.— Eight hours weekly.

Geometrical drawing and theorems in projection.— Eight hours weekly.

The second annual course includes —

Architectual drawing.— Eight hours weekly.

Drawing for metal workers.— Six hours weekly.

Artistic industrial drawing.— Eight hours weekly.

Modeling.— Four hours weekly.

The school hours on Sundays are from 9 to 12 o'clock a. m., and on two week days from 6.30 to 9 o'clock p. m.

Lectures are also given on such subjects as are especially important to workmen, and which are useful for local needs. Lectures are now given on industrial calculations for adult workmen.

The course lasts seven months each year, from October to May, at the end of which scholars receive a certificate of proficiency, etc. The fee amounts to 2 florins (80 cents). This is reduced to scholars without means.

I have been thus prolix in describing the course of this school, because in no other way could I convey a good idea of the requirements of the in-

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stitution which has been taken as a model for the establishment of similar schools by the Russian Government, and without details this report would seem to have no practical worth to those interested in the subject.

Last year a teacher in the Philadelphia Industrial School was sent to Europe to visit such institutions in England and on the Continent. He informed me that the *Gewerbe Schule* here was the most thorough one he had seen.

I am told that there are but three industrial schools in the United States, and that they are all small affairs. It requires but little discernment to see what a stimulating effect upon the trade of a country the thorough education of its artisans must have, and it is equally evident that in our wonderful development we should endeavor to lead the world in this, as in no country have the workmen so much ingenuity and practical skill as in the United States, and education only is necessary to enable them to lead in the great race and to supply the earth with manufactures.

Before closing I would also call attention to the Gewerbe Museum here, which, while not connected with the schools referred to, is founded and supported by contributions for the benefit of the manufacturer and artisan. Here are gathered together and arrayed for easy inspection samples of the best manufactures from all lands. Porcelain, glassware, iron and brass work, embroidery, lace, and indeed almost everything that can be used by the artisan as models. Here can the workman cultivate an artistic taste from the best models and make designs to be used in his own business. Many wealthy men take great interest in this museum, and while on voyages of pleasure seldom fail to procure specimens to be donated upon their return to the institution. It would be well for us if some of our manufacturers would allow some of their charity to drift in the same direction. —REICHENBERG, *May 1, 1888.*

JNO. B. HAWES,
Commercial Agent.

FINANCIAL SITUATION OF BRAZIL IN 1887.

In my last annual report, after describing the financial situation at Brazil, which seemed to me to be far from prosperous, I stated that the Government was exerting itself to improve this situation, and expressed the hope that the vast natural resources of the country, united to the patriotism of the people and the statesmanship of its public men, would enable it to pass safely through the difficulties which surrounded it.

Information which has since come to my knowledge shows that, although there is not yet any improvement sufficiently marked to allay the anxiety of those who wish well to the country, the efforts of the Government have not been, at least in some respects, altogether unsuccessful.

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FINANCES.

The deficit for the fiscal year 1884–'85 was somewhat larger than was supposed at the time I prepared my last report, the receipts for that year being $64,827,919 in United States currency, with exchange at par, and the expenses were $84,291,873. The deficit then was $19,463,954, and not $18,946,813, as I had gathered from official sources. The discrepancy was due to additional returns received at the treasury after my report had been made public.

The enormous territorial extent of this Empire and its imperfect means of communication greatly retard the process of preparing definite balances of public receipts and expenditures.

In the fiscal year 1885–'86 the Government succeeded in reducing the expenses to $80,878,286, while the receipts rose to $67,137,286, $2,307,367 more than the previous year. Owing to this decrease in expenses and increase in revenue the deficit was smaller by $5,721,983 in 1885–'86 than in 1884–'85, amounting in 1885–'86 to $13,741,471.

The revenue for the fiscal year 1886–'87 had been estimated in the respective budget at $69,054,444, but in the estimate presented to Parliament last May the minister of finance expressed the opinion that it would be nearly $73,000,000, which would be an increase of more than 8 per cent. over that of 1885–'86, more than 12 per cent. over that of 1884–'85, and more than 3½ per cent. over that of 1883–'84, the largest revenue which, up to that date, had ever been collected in Brazil.

Full returns for 1886–'87 have not been made public, but incomplete data which I have been able to gather from various sources indicate that the minister's estimate was not too favorable, for they show an increase of nearly 16 per cent. over the previous year. Should the returns not yet published be as favorable, the revenue for 1886–'87 will amount to about $77,760,000. The returns thus far published for the half year ending December 31, 1887, are not so favorable.

The Government was authorized to expend, in the year 1886–'87, the sum of $82,773,999, but in the above-mentioned report the minister of finance stated that the actual expenditure would probably be less. If this has really been the case, and if the increase in the revenue was as great as seems probable, the deficit in 1886–'87 will be less than half what it was in 1884–'85.

For the year 1888 the minister estimated the revenue at $72,519,354, and asked for authorization to expend $80,563,217. Parliament, however, voted appropriations to the amount of $82,868,614, not including expenses to an indefinite amount involved in various legislative enactments. It is probable, then, that the expenditures for 1888 will be at least equal to those of 1884–'85, and that although in the budget voted by Parliament the Government's estimate of the revenue was raised to $74,733,200, the year will close with a larger deficit than the minister of finance had anticipated. Still, the Government, in spite of the difficulties of many kinds with which it has had to contend, seems determined to persevere in its policy of financial reform.

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In his reports and speeches the minister of finance never fails to insist upon the necessity for retrenchment. While not regarding the situation as desperate, he considers it expedient to avoid measures involving increased expenditures, and recommends a careful revision of public expenditures for the purpose of suppressing the superfluous expenses which, in his opinion, may be found in every department of the Government.

While acknowledging that a great part of the increased expenditure of the country is due to a natural and praiseworthy longing for improvement and progress, he clearly perceives that whatever may be the motive for this expenditure, its result is a permanent deficit leading to excessive taxation, which—as he justly remarks—

> Counteracting the beneficial effects of improvements obtained at the cost of the public treasury, retards the development of the country, and to repeated loans which are only excusable when there is derived from them some palpable advantage offering a full and unquestionable compensation for the burdens which they impose.
>
> It is not necessary to employ many words to prove that permanent deficits are injurious; it is sufficient to reflect that constant deficits mean constant loans with a corresponding increase of the national debt and the respective interest. In a few years it becomes necessary to increase the taxes; that is, to increase the cost of living and to handicap our production with burdens which hamper us in competing with other nations.
>
> It is a mistake to suppose that taxes are light in Brazil. It is customary to estimate their burden by dividing the total amount derived from taxation by the whole number of the inhabitants of the country; but it must be remembered that there is an enormous part of the population which pays no taxes, and that the weight of these falls upon a limited number of persons, the producers, who, in my opinion, are at the present time greatly overburdened. Our taxes are now so exhorbitant that should there arise any new emergency — a foreign war for instance— it would be extremely difficult to devise means for drawing from our overtaxed production the additional resources which would be required for the necessities of the state.

THE LABOR QUESTION.

The exact result of the general enrollment of the slaves which terminated on March 31 last has not yet been made public; but in view of the almost complete returns which have been published, it is thought that the number of slaves in the Empire does not exceed 650,000; the decrease since 1873, if this estimate be correct, being over 900,000, or more than 60 per cent.

It is evident, therefore, that in a very few years slavery will have entirely ceased to exist in Brazil. During the year which has just closed this question has been constantly agitated, giving rise to heated debates in Parliament and to frequent disturbances in various localities.

During the year 52,620 immigrants have arrived at the different ports of the Empire. This is a much larger number than has ever been received before in any one year. The increase is due principally to the strenuous efforts made by the province of San Paulo to attract immigration. These efforts, which were initiated in 1882, have produced the following results:

	Immigrants.		Immigrants.
1882	2,743	1885	6,500
1883	4,911	1886	9,536
1884	4,879	1887	31,036

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After San Paulo, the province which attracts most immigrants is Rio Grande do Sul, which has a large foreign element; colonies having been founded there before (and many others since) the independence of Brazil.

The province of Rio de Janeiro, which has never been very successful in attracting immigration, has recently resolved to make another effort.

In the beginning of November Councillor Paulino do Souza, senator from this province, and one of the most prominent and influential leaders of the conservative party in Brazil, assembled the members of the provincial legislature and laid before them an immigration scheme which it was resolved to adopt. This scheme provides for combining the efforts of the provincial with those of the General Government, which for the year 1888 disposes of an appropriation of $1,270,000 for promoting immigration, besides a third of the product of the emancipation surtax, which it is calculated will amount to over $900,000 more. The General Government gives newly-arrived immigrants four days' board and lodging at its immigration depot and pays their passage by railway, river, or sea to the port or station nearest the place of settlement.

To planters who advance to immigrants the money for their passage from Europe, it repays the amount so expended after the immigrant is definitely settled on the plantation, the cost of passage not to exceed 80 millreis ($43.68) for each adult, 40 millreis ($21.84) for each child from eight to twelve years old, and 20 millreis ($10.92) for each child between three and eight. As many planters, for want of ready money, are not prepared to avail themseves of this assistance of the General Government, Councillor Paulino's plan provides that the provincial government shall act as an intermediary, advancing the passage money for the planter and afterwards collecting it from the General Government. It provides also for assisting the planter in receiving the newly-arrived immigrants by paying a premium of 100 millreis ($54.60) for each of the first 2,000 houses constructed for this purpose. To every Brazilian laborer who immigrates from any other province in the Empire to that of Rio de Janeiro will be given, at the end of two years' residence in this province, a premium amounting to a sum equal to that expended with each foreign immigrant. Another feature of this scheme is the purchase of plantations whose owners, for want of laborers, are not able to cultivate them. These plantations are to be divided into small farms and sold to immigrants who wish to settle as proprietors. It is proposed, moreover, to assist groups of planters in establishing central sugar-mills with machinery for manufacturing cane by the diffusion process. These mills must not cost more than $163,800 each. The loans made by the province to groups of planters will be secured by mortgage on the mills. To aid the provincial government in executing this programme a central association will be organized with agents in all the parishes of the province. The planter who needs laborers has only to fill up a blank application and hand it to one of these agents, who will forward it to the central association, declaring at the same time whether, in

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his opinion, the applicant is prepared to receive the laborers and provide for them properly after their arrival.

A bill embodying these ideas was passed by the provincial legislative assembly. It appropriates the sum of $540,000 for the acquisition of laborers and $1,620,000 for the promotion of the establishment of sugar-mills. The president of the province has been authorized by the General Government to introduce into the province, in conformity with this scheme, 3,000 families of immigrants. This was not the only measure brought before the provincial assembly in relation to the labor question. There was also introduced into that body a bill against vagrancy.

The bill empowers the municipal authorities to proceed to the enrollment of the inhabitants of their respective districts over eighteen years of age. The person so enrolled must declare his name, age, birthplace, and profession. These particulars, together with a description of his appearance for the purpose of identifying him, will be noted in a small book which he will be required to keep and to exhibit at stated intervals to the municipal and police authorities, proving at the same time that he is engaged in some honest occupation. To enforce this law the municipal authorities may impose fines not exceeding 60 millreis ($32.36) or sentence to imprisonment for a term of not more than eight days. If the person enrolled fails to prove that he is engaged in some honest occupation he is liable to be prosecuted as a vagrant* in accordance with the provisions of the criminal code of the Empire. Persons possessing property or paying direct taxes are to be exempt from enrollment. Several provisions besides those which have been mentioned are exerting themselves more or less actively to reorganize labor and promote immigration; and the General Government has addressed circulars to the provincial authorities encouraging them in this, and assuring them of its hearty cooperation.

Up to the present, however, it can not be positively asserted that the labor problem has been solved in any of the provinces of the Empire, not even in that of San Paulo, which has certainly made greater progress in this respect than any of the others.

STATE OF TRADE.

"The increase during the past year in the business done by the Bank of Brazil," says the board of supervisors of that bank, "is a noteworthy circumstance, which seems to point to the renewal of commercial activity and to deliverance from the dangers which now environ and threaten trade."

This improvement in the commercial outlook the board attributes to the policy of the present minister of finance of keeping out of the money market—

thus interrupting and perhaps permanently abolishing the detrimental practice established and maintained by his predecessors of depriving this market of large sums of money which it can ill afford to spare, requiring them as it does for its commercial transactions. That baneful practice which impoverishes and debilitates trade by depriving it of these resources during the

*Since the above was written the president of the province has vetoed the vagrancy bill, assigning as his reason therefor the unconstitutionality of the act.

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long intervals in which they are absorbed by the state is a double evil which injures commerce, not only by the depletion which it causes, but also, and perhaps even more, by the unhealthy plethora which ensues when the money so absorbed returns to circulation, producing reckless speculation and giving rise to a feverish activity which can not last, because in the normal condition of national wealth there are no elements to sustain it.

Exchange, which in 1886 had been comparatively favorable, continued to be so during the past year, there being no violent fluctuations in the value of the currency, which has generally had an upward tendency. This was due chiefly to the combination of foresight and good fortune, which has enabled the Government to provide for meeting its obligations at home and abroad without disturbing the money market.

The extreme quotations of exchange during the year were 21½*d.* and 24*d.* per millreis, the value of the currency now being greater than at any other period since 1880. This increase in the value of the paper currency gives rise to many conjectures in regard to the probability of a return to specie payments. It is known that the present minister of finance favors this idea, and it has more than once been rumored that he was on the point of contracting a large loan as a preliminary step in this direction. It does not, however, seem probable that he will attempt to resume specie payment until he shall have succeeded in getting rid of the permanent deficit in the budget of the Empire. A bill establishing the American system of national banks was introduced into the senate last year, but no action was taken on it by that body. Such a measure would doubtless be very useful, for, although it could not give the currency a fixed and tangible value, it would probably give it the necessary elasticity, for want of which the amount now in circulation sometimes seems excessive and at others insufficient.

A recent legislative enactment of special importance to persons interested in trade with this country is the new law on trade-marks voted last year by Parliament. The benefits of this law are extended to foreign trade-marks, if there is a treaty to this effect between Brazil and the respective country, it being necessary, however, to deposit at the office of the board of trade of this city the competent model and certificate of registry, and to have this certificate and a description of the trade-mark published in the official papers of the Empire.

In the latter part of the year trade was favorably affected by the repeal of the general export duty on sugar. In my last annual report I alluded to the precarious situation of the sugar industry of this country. In my dispatch No. 91 I informed the Department of the organization of an association in this city for the purpose of defending the interests of that industry. To the efforts of that association and to those of the representatives of the province of Pernambuco in the Brazilian Parliament the repeal of the duty is chiefly due. It is only just, however, to add that the measure is in accord with the views of the present minister of finance, who, indeed, favors the total repeal of export duties. He evidently does not consider so general a measure opportune at the present time, and, consequently, since he has been in office has abstained from recommending it to Parliament.

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EXPORT DUTY ON COFFEE.

Before leaving this subject, I take occasion to correct an error which prevails in the United States in relation to the export duty on coffee. It is constantly asserted there, both by the press and by our public men, that this tax was laid on the article after the repeal of the import duty by the United States, and that, consequently, the American consumer gained nothing by the removal of this burden. The assertion is entirely unfounded. The policy of taxing exports prevailed during the time when this country was under Portuguese rule, and has continued ever since. In 1853 the export duty on coffee was 5 per cent. In 1856 it was raised to 7 per cent., but in 1859 it was reduced to the previous rate. In 1860 it was again raised to 7 per cent., and in 1867 to 9 per cent. After that there was no alteration in this duty until 1882, when it was reduced to 7 per cent. Thus it will be seen that since the repeal of import duty by the United States on coffee the Brazilian export duty has been altered only once, and that, then, far from being increased as is generally supposed in the United States, it was considerably reduced. As an offset to the repeal of the duty on sugar, I have to record the increase of duties on nearly all kinds of merchandise, resulting from the revision of the custom-house tariff, which was authorized by Parliament in 1886. This increase of duties in the revised tariff (which went into operation on the 1st of July last) has already had an unfavorable effect on trade, and will, doubtless, affect it still more unfavorably in the future.

COFFEE.

What principally regulates the trade at Rio de Janeiro is its coffee market, though this is affected in its turn by many circumstances, both general and special. It is on the product of the sale of coffee that the people in Rio de Janeiro and of the dependent districts rely almost exclusively to obtain means to pay for what they import. The importance of the coffee trade of this port may be comprehended when I state that in the fiscal year 1886–'87 the value of the coffee shipped from here to foreign countries amounted to nearly 97 per cent. of that of all the merchandise so exported. In regard to the quantity of coffee handled in this market, the past year has not been favorable, as may be seen by the following statement, comparing the receipts, sales, and shipments of this year with the average for the five preceding years:

	1887.	Average, five preceding years.
	Bags.	*Bags.*
Receipts	2,227,036	3,907,832
Sales	2,254,262	3,889,763
Shipments	2,241,755	3,908,088

In 1887 the quantity of the coffee handled amounted to only about 60 per cent. of the average for the five preceding years. The crops of 1886–'87 and 1887–'88 were both small. That of 1886–'87, which had been esti-

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mated by some persons at 4,200,000 bags, amounted in reality to only 3,500,235 bags. Of that of 1887–'88 only 956,523 bags were received in this market in the first six months of the crop year, it being estimated that there were about 1,000,000 bags in the interior, so that the crop is probably less than 2,000,000 bags. And yet some persons estimated this crop as high as 2,750,000 bags. As to prices, they were high throughout the year, the extreme quotations for 1887 being 9½ and 22 cents per pound, against 3 and 15¼ cents in the five preceding years. The sudden decline in prices in the New York coffee market last June had a very paralyzing effect on the coffee business here. For four months there was scarcely any business done, the total sales during that time amounting to only 315,771 bags, or less than is sometimes sold here in a single week.

On the whole, while the first half of the year was not altogether unfavorable to trade, business in the latter half has certainly not been good. The coffee shipment during the year was distributed as follows:

UNITED STATES:		
New York	1,138,735	
Baltimore	173,127	
New Orleans	124,761	
Galveston	6,000	
Newport News	1,000	
Not specified	2,207	
		1,445,830
EUROPE:		
Hamburg	159,703	
Havre	100,483	
London	100,413	
Trieste	48,954	
Antwerp	48,038	
Marseilles	33,514	
Genoa	32,422	
Lisbon	14,548	
Southampton	12,648	
Falmouth	10,500	
Bordeaux	7,114	
Odessa	2,409	
Guttenberg	400	
St. Petersburg	250	
Opporto	118	
Corfu	100	
Not specified	17,551	
		589,165
River Plate		58,065
Cape of Good Hope		22,104
Port Natal		4,500
Port Elizabeth		3,351
Valparaiso		775
Brazilian ports		88,816
Not specified		25,149
Total number of bags		2,241,755

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The official value of the foreign and coast trade of Rio de Janeiro amounted in the fiscal year 1886–'87 to $111,275,142, and that of the whole Empire to $209,057,581 in 1885–'86, against $206,055,216 in 1884–'85.

FOREIGN TRADE OF BRAZIL.

In the year ending June 30, 1886, the official value of the foreign trade of this Empire amounted to $155,026,480 against $153,786,266 in the previous year. That of Rio de Janeiro amounted to $93,881,234 in the fiscal year 1886–'87, against $86,665,370 in 1885–'86 and $75,113,725 in 1884–'85. The following table shows the official value of the trade in this port in 1886–'87 with each of the countries mentioned therein:

Official value of the foreign trade of this port during the year 1886–'87.

Countries.	Exportation from Rio de Janeiro.	Importation into Rio de Janeiro.	Total.
Argentine Republic	$1,121,407.01	$1,367,842.47	$2,489,249.48
Austria	2,128,182.84	84,957.83	2,213,140.82
Belgium	1,156,024.32	2,577,932.06	3,733,956.38
Cape of Good Hope	308,680.64	.....	308,680.64
Cape Verde Islands	216.26	100,955.80	101,172.06
Channel	571,543.54	.....	571,543.54
Chili	9,571.92	59,333.12	68,905.10
France	3,649,386.94	5,649,539.79	9,298,926.73
Germany	6,122,333.69	5,720,796.38	11,843,130.07
Great Britain	4,014,310.94	19,253,445.74	23,267,756.68
Holland	2,560.80	41,484.08	44,044.88
Indo-China	.....	445,544.00	445,544.00
Italy	669,582.36	434,334.71	1,103,917.07
New Britain	.....	299,181.26	299,181.26
New Zealand	1,161.60	41,484.08	42,645.68
Portugal	683,326.09	3,037,835.74	3,721,161.83
Russia	27,726.60	15,650.80	43,377.40
Spain	108,741.42	19,245.60	127,986.02
Sweden	8,968.08	145,472.80	154,440.88
United States	27,681,223.86	3,891,869.92	31,573,093.78
Uruguay	343,966.35	2,033,382.84	2,377,349.19
Other countries	11,731.85	28,064.52	39,796.37
Total	48,630,647.26	45,250,586.98	93,881,234.24

On comparing this table with that in relation to the year 1885–'86 * it will be seen that there was an increase of $7,265,863.89 in the trade of this port with foreign countries. This increase was partly due to goods imported in the first six months of 1887 for the purpose of avoiding the heavier duties of the revised tariff which went into operation on July 1.

In the dry-goods trade there was a considerable increase, as is shown in the following statement of the quantities and values of the imports in the two years:

* Printed in Consular Reports No. 82, August, 1887, page 352.

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Weight in pounds.

	1885-'86.	1886-'87.
Cotton fabrics	16,817,785	19,381,490
Linen fabrics	8,890,152	7,242,950
Silk fabrics	120,650	158,725
Woolen fabrics	3,500,735	4,553,932
Total	29,329,322	31,337,097

Official value.

	1885-'86.	1886-'87.
Cotton fabrics	$10,077,565	$11,621,382
Linen fabrics	1,420,978	1,401,108
Silk fabrics	705,772	952,822
Woolen fabrics	3,034,676	3,624,390
Total	15,239,032	17,599,702

In the last six months of 1887 there was a considerable decrease in this trade, there being imported only 24,576 packages of dry goods against 30,306 in the corresponding period of 1886.

The most notable exception to the general improvement in trade in the fiscal year 1886-'87, compared with that of 1885-'86, was the dried-beef trade. In the former there were imported only 29,109,620 pounds against 74,687,989 in the previous year. The decrease was due to the interruption of trade by the cholera in the River Plate countries. The effect of that epidemic on the trade between Brazil and those countries is shown by the following statement:

Exports from Rio de Janeiro to the River Plate.

	1885-'86.	1886-'87.
Argentine Republic	$797,042.86	$1,121,407.01
Uruguay	433,656.02	343,966.35
Total	1,230,698.88	1,465,373.36

Imports into Rio de Janeiro from the River Plate.

	1885-'86.	1886-'87.
Argentine Republic	$2,474,826.07	$1,367,842.47
Uruguay	4,993,985.29	2,033,382.84
Total	7,468,811.36	3,401,225.31

Total trade between Rio de Janeiro and the River Plate.

Argentine Republic, 1885-'86	$3,266,873.93	
Uruguay, 1885-'86	5,427,641.31	
		$8,694,515.24
Argentine Republic, 1886-'87	$2,489,249.48	
Uruguay, 1886-'87	2,377,349.19	
		4,866,598.67
Decrease in 1886-'87		3,827,916.57

There was a marked increase in the trade between Rio de Janeiro and Germany, due to the systematic way in which the Germans are exerting themselves to build up this foreign trade.

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There was also a considerable increase in the trade with Italy, a natural consequence of the Italian immigration which is now flowing into Brazil. "Intervisiting," as suggested in my last annual report, "is a wonderful promoter of commercial as well as social relations."

TRADE BETWEEN BRAZIL AND THE UNITED STATES.

I am glad to see that, according to the table which I give above, there was some increase in the trade between this port and the United States. In the year 1886–'87, compared with the previous year, the exports from Rio de Janeiro to our country increased $937,460, or a little over 3½ per cent., and the imports received here from the United States $746,006, or nearly 24 per cent. The increase on imports and exports was $1,683,466, or over 5½ per cent.

It is probable that for the fiscal year ending June 30 next the showing will not be so favorable. The information which I have been able to collect in regard to the last six months of 1887 indicates a decrease in American merchandise. This I attribute to the elevation of duties and to the decrease of the purchasing power of the consumers. All the foreign trade of this market is suffering from the same causes.

In the calendar year of 1887 there were no importations of American butter. This fact is a striking example of the detriment caused to the foreign trade of the United States by the want of facilities for conducting it properly. Were those facilities such as they should be the entire butter trade of this market, amounting to more than $500,000 per annum, would, I have no doubt, be under American control.

In the flour market here we continue to hold our own. In this we were favored last year by the cholera in the River Plate countries, which are our principal competitors in this trade.

The consumption of imported flour amounted in the year 1887 to 414,413 barrels, against 428,741 in 1886 and 397,836 in 1885.

In the fiscal year 1886–'87 there were imported 441,883 barrels, valued at $1,629,438, against 425,763 barrels, valued at $1,705,181, in 1885–'86.

In the calendar year of 1887 there were imported 420,305 barrels, of which 328,804 were from the United States. The following is a comparative statement of the different classes of flour imported from the United States in 1887 compared with 1886:

	1886.	1887.
Baltimore, barrels	227,624	249,216
Richmond, barrels	44,875	37,735
Western interior, barrels	35,126	41,853
Total	307,625	328,804

The extreme quotations per barrel were as follows:

	1886.	1887.
Western interior	$5.40 to $7.65	$4.84 to $7.44
Baltimore	5.51 to 8.77	5.94 to 7.44
Richmond	6.30 to 8.77	5.50 to 7.70

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These quotations indicate that Western flour suffered last from the decline in prices. From the River Plate there were imported 63,871 barrels of flour in 1887 against 70,101 in the previous year. This article was quoted at from $3.52 to $6.82 per barrel. Comparing these quotations with those of American flour, we find a difference in favor of the latter of $1.32 per barrel for the lowest grades and 88 cents for the highest.

Of the quantity of flour made in this city, an estimate may be formed from the statement that 6,581,923 pounds of wheat were imported in 1885 and 7,641,700 in 1886–'87. I am glad to see that considerable interest was excited in the United States by the news of the organization of a company to establish new flour-mills in this city, as this interest, it is to be hoped, may lead to some systematic effort to promote the development of commercial relations between Brazil and the United States.

I do not, however, apprehend much injury to our flour trade from the organization of that company, and in this view of the matter I am governed by the following reasons:

1. It is very doubtful whether the enterprise will pay. The establishment of these mills involve, in my opinion, a much larger outlay than the founders of the enterprise suppose. In order to obtain a reasonable interest on the capital which will have to be invested, the company will have to sell its flour at prices which will enable us to compete with it successfully in this market. In this competition we are favored by the great advantage of having other markets at our disposal while the company will be restricted to this.

2. It is probable that the cost of manufacturing will be greater here than in the United States. It is true that wheat is nominally admitted free of duty, but in reality it is subject to a charge, called *expediente*, of 5 per cent. ad valorem. Thus the 7,641,700 pounds of wheat imported in 1886–'87 paid to the custom-house the sum of $3,056.68, or 4 cents per 100 pounds. Labor, indeed, is cheaper than in the United States, but it is very much less efficient, and all other expenses are greater. The duty on flour, which was not changed in the last revision of the tariff, is light, amounting at the present rate of exchange to about 30 cents per 100 pounds. Another circumstance which favors the American manufacturer is that he finds a ready market for all the subsidiary products obtained from wheat in converting it into flour, while this is not the case in Brazil.

3. It is not probable that so good an article will be made here as that which comes from the United States. It is a noteworthy fact, as will be seen by the quotations which I give in another place, that our flour sells for from 10 to 25 per cent. more than that of the River Plate, which is probably quite as good as the article which will be manufactured in this city.

4. The establishment of a line of steamers between Brazil and New Orleans, and the concession of liberal Government aid to it and to the New York line in the shape of compensation for carrying the mails, will enable them to transport flour to this market at nominal rates.

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5. Greater advantages can, I think, be obtained for our flour, and, indeed, for our merchandise in general, by means of a commercial treaty. The importance of the United States as a market for Brazilian coffee and as a probable market for Brazilian sugar places a powerful lever in our hands for negotiation of a treaty for commercial purposes.

6. If, in spite of all the circumstances I have mentioned in favor of American flour, it should be found profitable to manufacture the article here, there is nothing to prevent our mill-owners, whose interests are threatened, from establishing mills themselves in this place and competing with any others which may be established here. If an evolution in trade (which, as I have said, does not at present seem to me at all probable) makes it more advantageous for us to manufacture one of our products here than at home, it does not necessarily follow that we will be losers by the change.

This subject is frequently discussed as if the Brazilian Government discriminated against American flour in favor of River Plate wheat. This is not the case. Whatever may be the origin of the two articles they are subject to the custom-house, which I have already mentioned, and it is a significant fact that in the recent revision of the tariff no change whatever was made in this respect.

Should any discrimination be made hereafter, it is not likely that it will be against us, for on the one hand there is considerable rivalry between Brazil and the River Plate, and on the other our country's importance as a coffee market and possible sugar market for Brazil gives us, as I have said, a valuable base of operations for commercial diplomacy.

In the trade between Rio de Janeiro and the United States the American product next in importance to flour is kerosene. Of this article there were imported 3,419,220 gallons, valued at $768,478, in 1886–'87, against 2,514,670 gallons, valued at $626,262, in 1885–'86. The last half year of 1887 was not so favorable to this trade, the imports being only 969,220 gallons, against 2,167,540 in the corresponding period of 1886 and 1,014,860 in that of 1885.

The decrease is probably due to several causes. Gas has become cheaper since the works were transferred to a new company; the duty on kerosene was elevated in the last revision of the tariff, and the purchasing power of the consumer has diminished.

The extreme quotations were $2.32 and $2.81 per case of 10 gallons in 1887 against $2.76 and $3.25 in 1886.

In the year 1886–'87, compared with that of 1885–'86, there was a slight decrease in the importation of American lard, the amount received being 2,386,406 pounds, valued at $286,575, against 2,514,670 pounds, valued at $296,541. In the last six months of 1887 the decrease was still greater, there being imported only 21,700 kegs against 32,929 in the same period of 1886. The extreme quotations in 1887 were 15 and 17⅝ cents against 14 and 16¾ cents per pound in 1886. The recorded receipts of Brazilian lard in the calendar year of 1887 were 2,800,677 pounds against 2,427,409 pounds in 1886.

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In the fiscal year of 1886–'87 there was imported from the United States pine to the official value of $281,120. In the calendar year of 1887 the importation of American pitch pine was more than double that of the previous year, amounting to 16,175,061 feet against 7,757,069 feet in 1886. The total importation of American pine in 1887 was 19,154,144 feet against 11,055,490 feet in 1886.

The quotations varied as follows:

	1886.	1887.
Pitch pine, per dozen	$16.65 to $19.12	$7.92 to $17.60
Spruce pine, per dozen	17.12 to 17.34	7.92 to 11.88
White pine, per foot	4¼ to 5 cents.	4½ to 5½ cents.

In the fiscal year of 1886–'87 the importation of hardware, machinery, mathematical and surgical instruments, and various kinds of iron and steel goods from the United States amounted to $256,445. In the same year the importation of dry goods from the United States was as follows:

Cotton fabrics	$224,953.52
Linen fabrics	4,513,08
Silk fabrics	18,713.38
Woolen fabrics	791.80

In the same year Rio de Janeiro imported from our country—

Drugs and chemicals	$30,659.20
Clocks and watches	26,667.52
Paper goods	26,329.26
Miscellaneous merchandise	251,721.16

It also imported 4,781,900 pounds of resin, valued at $47,819, and 457,936 pounds of turpentine, valued at $36,640. In the calendar year of 1887 there were imported 4,790 barrels of resin, against 15,287 in 1886, and 4,754 cases of turpentine, against 5,641 in 1886.

The extreme quotations for rosin were $2.42 and $5.06 per barrel in 1887 against $2.47 and $5.17 in the previous year. For turpentine they were 7¼ and 9 cents per pound against 8½ and 11½ cents.

According to the records of this consulate-general, the table on the following page shows the exports from Rio de Janeiro to the United States and the number and tonnage of the American vessels engaged in trade with Rio de Janeiro during the year 1887.

The Brazilian Government has renewed its contract with the New York line of steamers, granting it a slightly diminished subsidy, for a further term of ten years. I am also glad to learn that a company has been organized in New Orleans for the establishment of a line of steamers between that port and Brazil.—RIO DE JANEIRO, *April 2, 1888.*

H. CLAY ARMSTRONG,
Consul-General.

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Quantity and value of the exports from Rio de Janeiro to the United States for the four quarters of the year ended December 31, 1887.

[As taken from the records of this consulate-general.]

Articles.	Quarter ending March 31.		Quarter ending June 30.		Quarter ending Sept. 30.		Quarter ending Dec. 31.		Total for the year.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Coffee.....bags...	394,411	$6,900,237.99	449,541	$9,536,954.63	165,706	$4,021,144.01	436,172	$9,206,962.83	1,445,830	$29,665,298.46
Ipecacuana.....pkgs..	37	3,361.00	.....	.....	.....	.....	21	1,785.94	.....	5,146.94
India rubber.....bales...	60	2,353.07	48	1,383.35	11	611.33	353	15,598.34	.....	19,946.09
Rosewood.....logs..	.....	.....	481	7,787.34	212	3,570.26	.....	.....	.....	11,357.60
Sugar.....bags..	.....	.....	5,287	19,184.42	.....	.....	.....	.....	.....	19,184.42
Sundries.....	.....	1,102.50	.....	4,125.66	.....	641.55	.....	4,194.44	.....	10,064.15
Total.....	.....	6,907,054.56	.....	9,569,435.40	.....	4,025,967.15	.....	9,228,541.55	.....	29,730,997.66
Total preceding year.....	.....	6,482,678.94	.....	3,598,419.96	.....	6,532,790.42	.....	8,736,952.59	.....	25,351,840.91
Increase.....	.....	426,375.62	.....	5,971,015.44	.....	.....	.....	491,588.96	.....	4,379,156.75
Decrease.....	.....	.....	.....	.....	.....	2,506,823.27	.....	.....	.....	.....

Navigation of the United States at the port of Rio de Janeiro for the calendar year 1887.

[As shown by the records of this consulate-general.]

Quarters ended—	Entered.					Cleared.				
	Steamers.		Sailing vessels.		Total tonnage.	Steamers.		Sailing vessels.		Total tonnage.
	No.	Tons.	No.	Tons.		No.	Tons.	No.	Tons.	
March 31.....	6	12,643.56	13	7,037.16	19,680.72	6	12,643.56	22	10,480.53	23,124.09
June 30.....	4	8,233.00	26	10,392.90	18,625.90	4	8,233.00	25	10,537.31	18,770.31
September 30.....	5	10,152.68	11	3,762.27	13,914.95	5	10,152.68	12	3,852.79	14,005.47
December 31.....	6	12,643.96	18	10,048.58	22,692.54	6	12,643.96	18	10,057.56	22,701.52
Total.....	21	43,673.20	63	31,240.91	74,914.11	21	43,673.20	77	34,928.19	78,601.39
Total 1886.....	13	.....	82	41,762.59	67,851.81	14	28,009.00	82	40,613.54	68,622.54
Increase.....	8	.....	.....	.....	7,062.30	7	15,664.20	.....	.....	9,978.85
Decrease.....	.....	.....	14	10,521.68	.....	.....	.....	5	5,685.35	.....

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BURNLEY SELF-HELP SPINNING AND MANUFACTURING SOCIETY, LIMITED.

One of the most hopeful auguries of a bright future is the spirit of self-reliance and self-help evinced by the British working classes. With education making rapid strides, combined with the good, old common sense and application to hard work which has helped them over so many dark corners in the past, it seems the working classes of England are quietly mapping out, in patient, peaceful labor, the way to a brighter era, at a time when the pessimists see but anarchism, communism, or at the best socialism, as a delivery from evils which in their eyes are worse even than these proposed remedies. Much as may be said in condemnation of the evils proclaimed against, and much justifiable unrest as they may create, yet it must be conceded that the improvements in the condition of the working classes, of which the past fifty years bear witness, are great, indeed, measured by every standard we may apply. It can not be denied that much of this progress is due to their enfranchisement, by which they were enabled to exercise, themselves, that healthful influence in the shaping of their own conditions, that so many great measures of reform have been carried in the period immediately behind us, and that others will be surely carried to a much greater extent in the immediate future. As one of the evidences of their self-reliance, and as an indication of the success of the means adopted by them for bettering their condition, it is only necessary to point to the co-operative stores of the Rochdale Pioneers and of others since organized, and in existence, all over the Kingdom. Their history is well known. Their annual turnover amounts to tens of millions of pounds. In 1884 the sales of all the co-operative stores of the United Kingdom amounted to £30,424,101, or about $150,000,000. They will now be near £35,000,000, or $175,000,000, if only the same aggregate of increase be added which has taken place during the four years previous to 1884. The net profits in 1884 amounted to £2,723,794, or $14,000,000. The membership was 897,950, and may be estimated at a round million at the present time.

These co-operative societies save considerable money to the working classes, both directly and indirectly. Directly by supplying the working classes with pure, unadulterated supplies, in quantities to suit their means, at wholesale prices; and indirectly, in forcing the small retail trader to conform to the standard of supplies and of prices held up by these co-operative distributors. One of the great steps forward marked out by these co-operative stores, however, is that they gradually become co-operative producers, and although they do not give the working people the profit of the work sold, as in purely co-operative production, but manufacture only for the supply of their own members with better and truly cheaper articles, yet by their successful operations they have done not a little to give an impulse to co-operative manufacture for the interest and profit of the working people form-

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ing the co-operative concern. One of these, in a very prosperous condition, I visited in Burnley. The society was organized in January, 1886, and commenced working operations in September of that year, thus being actively at work now a little over a year and a half. The success of this concern has now been the cause that one other co-operative society is about starting, with two more organized and preparing to soon commence work.

The prospectus and the brief sketch of their starting operations are so instructive that in place of transcription it will be best to report them in full:

This society has been formed for the purpose of manufacturing prints, Madapollam long cloths, shirtings, twills, jeanettes, and other cotton fabrics. Their aims are the emancipation of labor, and this they are proposing to do by making labor responsible for the results of its own working. In this their principle differs from previous efforts that have been made to solve the labor problem—their principle being that all workers in the concern shall be shareholders, the shares to be of the value of £5 each, and that no interest (or bonus, if any accrue to them) shall be paid to any working shareholder in cash until he or she has four £5 shares standing to their credit in the books of the society, but that it shall be added to their share account until such sums stand to their credit. They pay the Burnley standard list of wages to all employed. Interest is paid to capital at the rate of £5 per cent. per annum—the workers taking this responsibility on their shoulders, making it a first charge on the society—each worker agreeing that if the profits will not bear the interest charges to meet them from their wages. Thus the workers take the risk of the capital of non-working shareholders in the concern, if any profits remain after interest charges have been met. They depreciate machinery at the rate of 7½ per cent. per annum—providing that any profit remains after this they say that a portion, not exceeding three-fifths, shall be carried to a reserve fund, to be used also as a wage-balance fund, and the remainder is allotted to the workers, in proportion to his or her earnings for the period for which the profit is declared.

The soundness of the principle under which they start is especially worth noting. "Their aims are the emancipation of labor, and this they are proposing to do by making labor responsible for the result of its own working, In this their principle differs from previous efforts that have been made to solve the labor problem—their principle being that all workers in the concern shall be shareholders."

It is a matter of note that many co-operative productive concerns have missed their aim by gradually working into a shareholders' company, employing hired help and appropriating the profits to their own benefit. By employing only shareholders, Burnley self-help people make everybody working for the concern an interested party in the success of the whole body. The clause by which the profits due are added to the shareholder's credit, compulsorily, until his share capital shall amount to four shares of £5 each, makes it possible to the impecunious even to become a shareholder to the full amount, whence he can draw interest and profit in cash, without even drawing from his wages, which are those ruling in Burnley and are paid weekly in cash.

A résumé of the working operations of the first half year, and of the business and capital status of the concern, is given in the circular issued in April, 1887:

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HOW THE SOCIETY STANDS AT THE PRESENT TIME.

We first commenced operations in January, 1886, holding several public meetings, at which (through the kindness of the central board) some of the members of the central co-operative board were present as speakers, and to give us their advice. We proposed to raise £5,000 in shares of £5 each, fixing Monday, the 15th of March, 1886, as the day on which the share list should be closed. A provisional committee had been formed, all of whom had a practical knowledge of the trade, every branch of the trade being represented on the committee, from managers to weavers. The principle of three-fourths of the Burnley manufacturers being to rent and not to own the mills in which they carried on their business, the provisional committee set about securing a mill on these conditions — the landlord to find room and power to turn the machinery; the society, as lessees, to find the machinery and other plant. To solve this question in a practical manner it was their intention to face the *open market*. Their next point was to so plan the concern that no machine or labor should be wasted, and to place the society in that position that it should be able to use everything to the best advantage, and that it should be able to compete with any firm in the trade. After several consultations a mill was taken from J. S. Grimshawe, esq., centrally situated, bounded on one side by the Leeds and Liverpool Canal, with good roads to it near the Lancashire and Yorkshire railway station, on very advantageous terms, the basis being the lessor to find room and power to turn 400 looms, at the rate of 36*s.* per loom per annum; the lessor further agreeing that if the society could see its way to put in 600 looms that the rent should be reduced to 35*s.* per annum. The lessor also further agreeing to lend the society £1,000 at 5 per cent. interest, to be paid back one £500 in 13 annual installments, principal and interest, the other £500 to be paid back at the option of the lessor when the paid up share capital of the society reached £6,000. Thus it will easily be seen that practically this £1,000 loan is as good as share capital to the society. The rent for room and power for taping, winding, and beaming is £75 per annum, which the society are confident in saying is as cheap as any room and power that has ever been taken in Burnley before. The rooms are lofty and well built, with a splendid pair of engines, 1,000 indicated horse-power motive force, sufficient to turn 2,500 looms, with plenty of room to extend the premises if capital should be forthcoming. The capital of the society at the present time is, shares, £3,700; loan, £2,100; reserve fund, £470, which increases every week. On an average the share capital increases from the workers alone £20 a week. Twelve hundred and sixty pounds sterling of the share capital has been subscribed by 11 co-operative societies; £1,400 by the workers, and the remainder by individuals. The loans are principally from the workers or their relations. We have at work 388 looms, with all the necessary preparation machinery, which finds employment for 72 males, 50 females, and 44 young persons (with the exception of some few minors), all shareholders. The machinery is at full work, with plenty of orders, and with very fair prospects of making a good return for money invested. After six months' working (we having issued our first balance sheet on March 26) we had a very favorable report to issue to our shareholders, as after meeting all interest, depreciation, and other charges we had a net profit remaining of £692 0*s.* 6½*d.* Of this amount we decided to write off the whole of the formation expenses; to pay a dividend to labor at the rate of 5 per cent. on all wages earned, and carried the balance, amounting to £470, to reserve fund. With such results from the first half-year's working, we have confidence in recommending our society to all persons who have money to invest as a safe and profitable investment, combining in itself two things. In the first place, *true philanthropy*, by helping and encouraging the masses of the people to help themselves; and in the second place insuring that the management of the concern is in the hands of practical men, well versed in all the branches of the trade. Each shareholder has one vote, and no proxy voting; societies who may become members to have the right to appoint a deputy to vote for them, who, so long as he may continue their deputy, shall enjoy all the rights and privileges which appertain to any shareholder. Applications for shares may be made at the

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offices, Healey Royd Mills, on Mondays, Wednesdays, and Saturdays from 2 to 6 p. m. Any information which may be required will be gladly forwarded on application to the secretary.

The conditions under which the concern went to work, it will be seen, are eminently favorable. The risks are reduced to a minimum. With honest and fairly able management, of which there can be no doubt under the manner in which it is conducted, this co-operative society must make a profit on its operations so long as any profit can be made at all on cotton cloth by any manufacturing concern.

The power is leased with the buildings, forming part of the rent, as is done by three-fourths of the manufacturers of Burnley, on very favorable terms to the society.

After six months' working the society was able, after meeting all interest, depreciation, and other charges, to show a net profit of £692, or $3,350. This amount was used to pay off all the formation expense, to pay a dividend to labor of 5 per cent. on all wages earned, and a remainder of £470 was carried to the reserve fund. Now, this dividend, it must be correctly understood, is not paid to the shareholders, but to the worker. The shareholder is paid his 5 per cent. interest, whether a worker or not; the dividend is paid to the worker according to the wages earned. By this means the net results of the worker's exertions are reserved to the worker alone. It is evident that he, receiving alone the results of profitable working and management beyond the share due to capital, of which he himself is part owner, will exercise all his endeavors to bring his own and everybody else's working results to the highest perfection, to watch wastefulness both in labor and materials, and look to and exercise himself a watchful control of the management.

On the other hand, it has been found necessary to clothe the managing director with no small degree of authority over the workers, to guard against the recurrence of what has so frequently proven fatal to many a promising co-operative production concern—the lack of authority in the manager, especially in the control of the workers, all of them being equals in the concern. Many a shiftless worker, not able to find employment in other mills, by taking shares in the co-operative society, for which his friends, to get rid of a drone, perhaps, may have scraped the money together, has thought to make his place secure, to the detriment of other workers and the efficiency of the organization. Experience of this sort has led the board of directors to adopt a resolution by which they clothe the manager with full authority to discharge any worker who is found derelict in his duties or trying to shelter his incapacity or undesirable traits of character behind his rights of a shareholder and member of the self-help society; thus making itself, by the adoption of sound business principles, secure against all dangers from within, more fatal than those possibly to be met with from without, the society is on a fair path to lasting prosperity.

For the further rules and regulations governing the society I refer to the "special rules," which explain the details more fully, under which the management is conducted, and otherwise contain useful information:

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SPECIAL RULES — BURNLEY "SELF-HELP" COTTON-SPINNING AND MANUFACTURING SOCIETY, LIMITED.

I. General Rule 3. — The name of this society is the Burnley Self-Help Cotton-Spinning and Manufacturing Society, Limited.

II. General Rule 3. — The special objects of the society is to carry on the trade of cotton spinners and manufacturers, and also that of dealers in cloth and yarn, both wholesale and retail.

III. The registered office of the society is at Healey Royd Mills, Burnley, in the county of Lancaster.

IV. General Rule 22. — (*a*) The shares shall be of the nominal value of £5 each, payable as to each share required to be held by 10*s*. on allotment and 10*s*. per month in the nine calendar months following, or such other sums as the general meetings may determine, with a fine of 10*s*. on non-payment; and as to any shares not required to be held payable by such installments, as the committee may fix on the issue thereof, respectively. (*b*) All workers before being entitled to receive (in cash) either interest on shares or any dividend on wages which may accrue to them, shall hold not less than four fully paid-up shares, or such other number as the general meetings may determine from time to time, otherwise their dividend and interest shall be placed to their share accounts. (*c*) The holders of shares allotted in respect to the profits due as dividends on wages may pay them up by weekly or monthly contributions of not less than 1*s*. per week, or some multiple thereof, as may be agreed upon by the general meetings from time to time.

V. General Rule 39. — Shares shall not bear interest until they are fully paid up, nor for any part of a calendar month; interest to commence from the first day of the month.

VI. General Rules 57 to 60. — (*a*) The ordinary business meetings of the society shall be held quarterly, on the second Tuesdays in the months of January and July, and on the second Saturdays in the months of April and October, in each year, at such time and place as the committee may determine, of which due notice shall be given. (*b*) The accounts shall be made-up half-yearly, to the end of March and September in each year, and shall be presented to the ordinary business meetings held in the months following.

VII. General Rules 75 to 80. — (*a*) The business of the society shall be conducted by a president and eight committeemen. (*b*) The president to be elected at the January meeting in each year, and two committeemen to retire and two to be elected at each quarterly meeting. (*c*) Nominations of candidates for the board of management shall be made at the registered office of the society not less than fourteen days before the day of election. (*d*) Being engaged as a worker by the society shall not be a disqualification from serving on the committee of management.

VIII. General Rule 83. — The quorum of the committee shall be five.

IX. General Rules 90 and 93. — The committee shall have entire control over the business of the society, and shall have power to engage or discharge, from time to time, any persons as secretary or general manager, and may assign to them, if they think fit, the power to engage or discharge any manual worker (subject to rules), and may also assign to them such salaries, duties, and powers as may be deemed expedient, subject to any resolutions of the general meetings relating thereto.

X. General Rule 96. — The seal of the society shall have the device of the clasped hands in the center, with a throstle spindle above and a shuttle below.

XI. General Rules 103 and 104. — At the second ordinary business meeting in each year there shall be appointed from the members of the society two auditors, who shall serve for one year and then retire, but may be eligible for re-election. The general meeting may appoint, in place of the two auditors before mentioned, a public auditor, who shall serve for a like period and be elected in the same manner.

XII. General Rule 114. — (*a*) The rate of depreciation on fixtures and machinery shall be £7 10*s*. per cent. per annum, and 2½ per cent. per annum on lands and buildings.

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(*b*) The rate of interest on share capital shall be £5 per cent. per annum. But in case the state of business does not permit this amount to be paid, the deficit shall be made good by a reduction of the wages of those members who are employed by the society proportionate to the amounts earned by them, respectively, during the period to which such deficit relates; or in such other manner as may be decided upon by any general meeting from time to time.

XIII. General Rule 114.—(*a*) The net profits remaining after providing for the charges specified in General Rule 114 and Special Rule XII, shall be divided among the workers employed by the society to each in proportion to their earnings for the period to which the profits relate. (*b*) Workers shall only be entitled to dividends upon their wages from such time that they become shareholders. (*c*) All profits allotted to workers as dividend on their wages shall be credited to their account as share-capital in the society until each worker has at least four shares fully paid up. (*d*) If any worker refuses to take up a share in respect of any profit assigned to them within twelve months following after the declaration of profit has been made, such bonus shall be forfeited to the society and carried to the reserve fund. (*e*) Clause *d* applies to those workers who have less than four shares taken up, or such other number of shares as the general meeting may have determined they must hold, or, in the event of no such resolutions, as the committee may determine.

XIV. No shareholder who does not hold one fully paid-up share shall be entitled to vote.

XV. General Rule 123.—Clause *a* of Special Rule XIII and clause *b* of Special Rule XII is hereby declared to be fundamental, and shall not be altered or rescinded without the consent of two thirds of all the members for the time being.

XVI. Workers who are minors shall have any bonus accruing to them carried to a suspension fund until they become sixteen years of age, when they must take up a share; failing to take up a share within the twelve months after they become eligible, such bonus shall be forfeited and carried to a reserve fund.

The last half-yearly statement of the society speaks of continued prosperity, a sign of which may also be found in the fact that they expect to extend their working power by adding 214 more looms to fill the vacant space in the shed.

I annex the "balance sheet of the Burnley 'Self-Help' Spinning and Manufacturing Society, Limited, from September 28, 1887, to March 24, 1888," as its figures are full of instructive meaning:

Cash account.

	£ s. d.		£ s. d.
To balance cash in hand last half year..	37 15 11	By purchases, yarn, etc	15,638 19 8
" cloth and waste sales	20,762 17 4	" wages and other expenses	4,447 13 7½
" proposition fees £1 3 0		" machinery and fixtures	22 17 3
" transfer 0 8 6		" loan withdrawals	713 2 11
" tea water sold 10 12 3		" bank deposits	21,306 19 4
	12 3 9	" balance cash in hand	10 11 11
" sick weaver's bonus returned	0 11 6		
" fixtures sold	3 10 0		
" share contributions	255 5 0		
" loan contributions	592 12 7½		
" bank withdrawals	20,475 8 7		
	42,140 4 8½		42,140 4 8½

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Machinery and fixtures account.

	£	s.	d.		£	s.	d.	£	s.	d.
To amount expended as per last report..				4,194	5	2	By depreciation previously allowed	228	14	8			
" additions this half year..	£22	4	7				" depreciation this half year at 7½ per cent. per annum	158	5	1			
" less fixtures sold, see cash account.....	3	10	0								386	19	9
				18	14	7	" balance.....				3,826	0	0
				4,212	19	9					4,212	19	9

Expenses account.

	£	s.	d.		£	s.	d.
To wages	3,901	5	9	By proposition fees.....		1	3	0
" commission	3	12	0	" transfer fees.....		0	8	6
" directors' fees.....	12	0	0	" tea water sold		10	18	3
" auditors' "	4	4	0	" balance to trade account	5,213	19	4
" stocktakers' fees.....	0	15	0				
" stocktakers' refreshments...	0	6	7				
" rent and turning.....	444	5	0				
" insurance	10	14	0				
" gas and water.....	41	8	11				
" carriage	214	16	17				
" gold plate, etc.....	9	18	7				
" healds, reeds, etc.....	41	2	8½				
" shuttles	1	18	0				
" strapping, picking bands, and pickers	39	2	5				
" oil and grease.....	39	15	10				
" brushes, paper, and twine.....	30	16	11½				
" repairs.....	43	1	3½				
" traveling.....	23	0	11				
" printing and stationery.....	8	8	9				
" stamps and telegrams.....	9	7	6				
" doctor's fees	3	15	0				
" Central Co-operation Board's subscription	1	5	0				
" exchange tickets	5	1	0				
" legal expenses.....	10	19	8				
" sundries	5	0	6				
" bank commission and check book..	8	6	8				
" depreciation of machinery, etc.....	158	5	1				
" interest on share capital £90 9 1							
" interest on loan capital 58 13 10½							
" interest on bank balances 4 6 5							
	153	9	4½				
	5,226	3	1		5,226	3	1

Trade account.

	£	s.	d.		£	s.	d.
To stocks last half year.....	3,593	17	2	By cloth sales.....	20,363	19	11
" yarns and purchases.....	15,098	1	2	" stock, March 24, 1888.....	3,727	10	0
" expenses as per expenses account ...	5,213	19	4				
" net profit.....	185	12	3				
	24,091	9	11		24,091	9	11

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Reserve fund account.

	£ s. d.		£ s. d.
To balance, March 24, 1888	663 14 0	By balance last half year	443 12 2½
		" profit and loss account — undivided profit of last half year	219 10 3½
		" sick weavers' bonus returned	0 11 6
	663 14 0		663 14 0

Profit and loss account.

	£ s. d.	£ s. d.		£ s. d.
To bonus on wages credited to share and loan accounts	97 7 7		By balance profit disposable, last half year	309 16 10½
" interest on share capital.	78 12 3		" interest on share capital, last half year	78 2 7
" interest on loan capital..	33 9 1		" interest on loan capital, last half year	40 1 9
		209 8 11		
" reserve fund		219 10 3½	" errors in balance share accounts	0 18 0
		428 19 2½		428 19 2½

Capital account.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To 890 shares at £5 each, subscribed	4,450 0 0		By stock, yarn, and cloth.	3,727 10 0	
" less amount unpaid..	465 19 3		" stock, stores, etc	105 6 6	
		3,984 0 9			3,832 16 6
" loans		2,330 2 9½	" machinery and fixtures		3,826 0 0
" accounts owing share interest	£90 9 1		" accounts owing to the society		356 12 0
" accounts owing loan interest	51 5 10½		" cash in bank	£801 16 7	
		141 14 11½	" cash in hand	10 11 11	
					812 8 6
" accounts owing trade and expenses		1,522 12 3			
" reserve fund		663 14 0			
" net profit (see trade account)		185 12 3			
		8,827 17 0			8,827 17 0

An examination of the expenses account will show the details of which this general expense account is composed, and at the same time serve in comparison and amplification of the statement in the report on the manufacture of print cloths relating to this item. What concerns us most, however, in a socio-economic sense is the profit share (see profit and loss account), of special importance when we consider the ferment in which the labor world is found at the present time. It is held by socialistic writers that the main cause of the inequality in the conditions of men is that capital — and they are in the habit of taking capitalist and employer as synonymous terms — appropriates the greatest share of the product, and leaves only a small part to the worker. This part of the theorem, if the premises are correct, is unanswerable. The remedy proposed is, the state to assume the function of employer and capitalist, and supply the worker with the machinery, tools, means, etc., whereby to enable him to appropriate all the profits of industry to himself. At a time when profits were excessive and wages were low indeed, the proposition had something captivating as an easy way out of a difficult dilemma. Under the harrowing conditions existing some fifty years ago — great capital power, with all the harshness which new-acquired wealth exer-

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cised, on the one side; abject poverty and degradation on the side of those who produced this wealth; ignorance on both sides of the true causes which contribute to the welfare of nations—state action alone seemed to be able to cope with these monstrous conditions.

Under conditions superinduced by artificial means, such as protective laws, where combinations for holding up prices are only too fruitful of success, though real wages are not necessarily raised, yet profits are very high, so long at least as counteracting influences have not had time to manifest themselves, there conditions may be created which invite the thoughtless to propose heroic measures, and people will gradually become accustomed to looking to the state as a deliverer from social and economic complications. Under conditions making successful combinations to uphold prices impossible, however, it must be seen, the competition of capital and employer with capital and employer, and the competition of the open market, becomes so intense that profit as well as interest on capital becomes smaller and smaller and the share of labor in production greater and greater.

The half-yearly business amounted to £20,762, or, in round numbers, to $100,000, an annual turn-over of $200,000, which may be considered quite a respectable amount of business in goods not amounting to 3 cents a yard, selling value. The yarn purchased amounted to £15,638. Wages amounted to £3,901; other expenses, including rent, supplies, depreciation, etc., £1,172; interest on share and loan capital, £153; a total of £5,226. On this whole amount of business a gross total profit of £493 was realized. Out of this £493 there has been accounted for under depreciation £158; interest on loan and share capital, £149; leaving only a disposable balance of net profit, to be distributed as a dividend to labor, of £186.

A semi-annual dividend of 2½ per cent. was declared, absorbing £97 10*s.*, and the balance, amounting to £88, after allowing £15 for special depreciation on twill motion, leaving £73, was written to the reserve fund, which increased the reserve or wages balance fund to £736 15*s.* 7*d.*

The whole net profit, then, which might be taken to stand for the employer's profit, is £186 for the half-year's business, or in round numbers, say, £400, or $2,000, or 1 per cent. per year on a business of $200,000. If this sum is distributed among wages, which virtually receives it in this self-help concern either in dividends or as owners of the balance fund, then the annual wages of $40,000, round numbers, would be benefited 5 per cent., or annual earnings of $200 raised to $210, and of $300 to $315. Even the interest paid to capital, added to wages, would not raise these more than about $4 on every $100 of yearly earnings. But it is never held that capital, either loaned or owned, is to go without a certain compensation. The smaller this compensation the surer the owner of it will be of the safety of his investment. This the organizers of the self-help society have fully established, and the necessity of it recognized in the stipulation that capital shall always be guaranteed its income. If not earned the reserve-wages fund is held liable for it. Wages, even in case of emergency, are subjected to a con-

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tribution towards interest charges. I do not wish to be understood that I disparage the importance to the laborer of an additional income of $10 on $200 earnings. I only wish to illustrate the smallness of the net profits after deducting all indispensable running charges, on which most large industries are conducted now-a-days, as against the exaggerated views commonly held, and probably justifiable, in former days in England.

As an educator of the working classes economically such an enterprise in self-help can not be overestimated. Besides, their incomes are raised, and in proportion they become the sole capital owners; become the recipients of the total gross profit of their business, the capital profit, and the employers' profit. Economy and thrift must be the result. The share capital becomes a kind of savings bank to the operatives. They become their own investors. Already the weekly addition to the share capital from the workers is £20, or £1,000 per annum. From this it will be judged in how short a time the total loan and share capital, held outside, will all be owned by the operatives when they will have actually realized in a small way by self-help and the exercise of good, hard, common sense what is attainable in this world of toil—the full and undivided fruit of their own labor. Even as now situated their condition is an excellent one and fully equal in earnings to that of their brothers and sisters in America.

At the present day (May 3, 1888) the concern has 163 workers employed. These are, as stated to me, 70 men, 36 women, and 57 odd hands and minders. Some 40 of these 57 are young persons, employed as minders or learners, running one or two looms under the care and pay of the six-loom weaver as helper, when they get 6*s.* a week or run one loom for themselves; and if more expert, two looms, and are paid full wages.

Yet with this proportion of young persons employed the weekly wages paid are £155 or $750, giving each worker, man, woman, and child, $4.60, or $239 per annum. Add to this their shareholders' interest and the dividend or profit share, and they will come above the average earnings of our cotton-mill operatives, as given in the census report of 1880.

But even standing by themselves and corresponding with those of non-co-operative mills in Burnley, the earnings are not very materially different from those in America, which were in the census year $246.—TUNSTALL, ENGLAND, *May 3, 1888.*

J. SCHOENHOF,
Consul.

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COMMERCE AND INDUSTRIES OF SIAM.

GEOGRAPHICAL POSITION.

Siam, the last of the independent kingdoms of "Farther India," extends from latitude 23° north to its southern boundary, between the Redang and Kedah, in latitude 5° north. Siam proper is bounded on the south by the Gulf of Siam, and is included within the valleys of the Bangkakong, Menam, Tachin, and Meklong Rivers.

POPULATION.

Its population is variously estimated at from 6,000,000 to 10,000,000, consisting, with the native Siamese, of Tavayans, Peguans, Burmese, and Cambodians. Of Chinese, there are from 1,200,000 to 1,500,000 who pay a triennial tax of $2.40, Mexican, to the Siamese Government.

TRIBUTARY PROVINCES.

The Siamese of former days were a warlike race, but are now almost entirely etiolated. They fought with their neighbors, conquered and incorporated their kingdoms, and, with the exception of Burmah, had no one to fear. The Laos tributary provinces are situated on the north and contain the most valuable of the teak forests of the Kingdom. Chiengmai, the capital of Western Laos, is a large and flourishing city, the residence of the King, and bids fair to become the emporium of the north. In the southeast lie the countries wrested from the Cambodian monarchs, while along the Peninsula of Malacca, throughout almost its entire length, the Malay sultans and rajahs, who owe allegiance to His Siamese Majesty, hold their courts in oriental magnificence.

GOVERNMENT.

The Government of Siam is an absolute monarchy, which holds its courts at Bangkok. The power of the King is tempered by the influence of the princes and nobles, who have access to the councils of state, which, with the exception of the chief holidays, hold session daily. The Senabodi, chief ministers of the Kingdom, four in number, the council of state, composed of eight of the leading nobles, and the privy council, consisting of about thirty members, have cognizance of all matters affecting the welfare of the state. The first King of United Siam ascended the throne in the year 1351, since which time there have been forty Kings and two usurpers, embracing four dynasties. The present King, P'rabaht Somdech P'ra Paramendh Maha Chulalongkom Klow, ascended the throne in 1868. He is in his thirty-third year, and for an eastern potentate is possessed of very liberal ideas and much thought of by his subjects.

DIPLOMATIC AND CONSULAR REPRESENTATIVES.

Siam is well represented abroad by its diplomatic corps. Ministers have been appointed to Great Britain and France. Four consuls-general are es-

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tablished in London, Paris, New York, and Hamburg, while consuls, twenty-one in number, are found in the chief cities of the globe.

THE CITY OF BANGKOK.

Bangkok, the capital of Siam, is situated on the Menam River, about 25 miles from its mouth, and with its suburbs extends for about 10 miles along both its banks. It is intersected by a net-work of canals, many of large size, and connecting with the other three rivers of the country allow a water-way to all parts of the Kingdom. The city, which surrounds the palaces of the Kings of Siam, is situated on the left bank of the river and was founded by P'ra P'utta Yaut Fah, the first king of the present dynasty, in 1781. Its walls are about 11 miles in circumference, built in a most substantial manner of brick and stones, turreted at intervals, with a base of 18 feet. It was built by the late King after a visit to Singapore, the streets being laid out at right-angles, the building of bricks, and stuccoed. The palaces and Government buildings, as well as the residences of the diplomatic and consular corps, merchants, and chief foreigners, are situated on the left bank of the river. A carriage road, skirting the river from the palace to far below the present outskirts of the town, gives a means of communication by land, while the river is available for points on the right bank, which is settled by natives or Chinese merchants. The palaces of the princes and nobles, the "walts" or temples of Buddhism, and the residences of the Chinese merchants give a variety of architecture that is seen nowhere except in Bangkok. Markets are established at intervals throughout the city, and are well supplied with provisions, vegetables, and fruit, the system of canals allowing produce to be distributed to all points. There are two hotels, one of which, lately completed, is a palatial building. The Bangkok Hospital—established about two years—has filled a much needed want in this community, and is doing good work. There are several churches connected with the Protestant and Roman Catholic missions; also a library and club. The climate is healthy; in fact it has the name of being the healthiest in the tropics. The occasional cases of sporadic cholera and dysentery are due principally to the indigestion of the victims. Fevers are seldom dangerous, except the jungle fever. The temperature in Bangkok ranges from 57° to 98° Fahrenheit, while the mean for the last ten years has been 80.1°. The average rain-fall for the same period was 67.04 inches. Hail occurs here at long intervals, but the fall is very small, doing no injury to the crops. Bangkok has, with its environs, 400,000 inhabitants, a motley collection of all the races and nations of the East.

AGRICULTURE IN SIAM.

The annual freshets, caused by the overflowing of the banks of the rivers, render the country fertile in the extreme, insuring a good crop for the year. The exportation of rice has only been carried on to any extent since making the treaties of 1856, at which time the old law requiring a three years' supply in the country before rice could be exported was abolished. Sugar, pepper, and products of the forest were the principal exports. When foreign

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merchants came to make their residence in Siam, and foreign vessels sought cargoes in Bangkok, some trouble was experienced in obtaining them. Some of the natives being informed that rice would be acceptable began planting, and, finding a ready market for their crops, others followed their example, until to-day all the available rice fields are under cultivation. Canals have been excavated through waste lands, from river to river, by means of which immense tracts have been opened out to cultivation that otherwise would not have been available, owing to the expense of carriage of crop to market. The new fields are not taxable for five years, as well as the fisheries, thus encouraging the people to occupy that locality. Rice fields are divided off into squares of about one-third of an acre, which are rented by the Government to the people at the rate of 28 cents per square for the season. Owing to the amount of rain during the past rainy season the crops have been abundant. When the immense tracts of land now uncultivated shall have been opened out by means of canals and railways, the quantity of rice grown in Siam will be increased many fold. Siam exports rice to Singapore, Java, Hong-Kong, and China, while considerable finds its way to Europe and the Philippine Islands. Of vegetables we have the cabbage, turnip, tomato, green pea, bean, egg-plant, squash, pumpkin, cucumber, sweet potato, yam, and many others unknown to the West. The fruits are the same as are to be found at all places in the tropics, with the addition of the mangosteen and durion.

MANUFACTURES OF SIAM.

The manufactures of Siam are meager. Pans are made by the iron farmer, who has the monopoly, but the price placed upon them is so excessive that recourse is taken to importation from China, paying an import duty of 3 per cent. Knives, agricultural implements, and other articles are made by the blacksmiths throughout the country, but the amount is comparatively trifling. A cloth is manufactured for native use, but as with the iron, the tax on loom, material, house, and market duty makes the aggregate so much that few take to it as a livelihood. In Bangkok the cloth used by the Siamese is imported from Bombay, native production being seldom seen. Pottery of a very crude description is made, principally rice and curry pots, and water jars. There is no doubt that in the past, owing to the laziness of the people, they preferred to look to China for supplies rather than manufacture themselves.

MINES IN SIAM.

Siam is rich in minerals. Gold, iron, tin, and copper are found in many parts of the country, but the want of roads and consequent difficulty of getting these valuable metals to market prevent their being worked except for the limited wants of the natives. The eastern part of Siam is very rich in iron, antimony, and argentiferous copper and tin. It is from the provinces of Petchaboon and Lŏm that the cutlasses, spears, and knives are furnished to all the provinces of the north and east. Silver is not found in Siam.

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Gold.—This metal is found in many places, but the mines at Bang Tapan, on the west coast, are said to contain the purest gold in the country. They have been worked by the natives by simply turning over the ground, the gold being found in the shape of nuggets. When nuggets over a certain size were found the miners were obliged to hand them over to the Government, being paid for the same according to a tariff fixed by the authorities. A syndicate of foreigners has been formed, with a concession from the King, for working these mines, and have now a number of workmen employed, the prospects for rich developments being good. Owing to the fatal diseases of that section it is impossible for foreigners to remain in that locality. The quartz mines of Muang Krabin, sometimes worked under the supervision of Pra Pecha, the governor of Muang Prachim, although productive, were declared unprofitable to the Government. Experienced engineers from Australia, mining machinery of recent invention, immense upright pumps, and other hydraulic machinery, and a narrow-gauge railroad, with rolling stock for the conveyance of the product, had been procured for the working of the mine, but the organizer of the great scheme having been decapitated for alleged treason, the whole of the plant is lying idle, the brush of the jungle is covering all trace of past work, and tens of thousands of dollars' worth of material is fast going to ruin. The royal metal of Siam is mostly manufactured into vases, tea-pots, betel-boxes, and other articles, which it is the custom of the Kings of Siam to present to subjects upon their elevation to high rank in the peerage of the Kingdom. They are looked upon, in a sense, as insignia of their exalted rank, the shape and style of the set denoting the standing of their beneficiary. The metal being pure gold, braces are required, as it is too soft to retain its shape without. It is impossible at present to procure statistics concerning the output of the mines. The value of gold leaf imported from China in the year 1886 was $101,287, as compared with $427,441 for 1885. The greater part of this was made into jewelry.

Iron.—Iron of good quality is found in the eastern provinces, but it is worked in the crudest manner possible. Foundries are unknown factors in that primitive region. A hole or pit having been dug close to the mountain, the miner collects and piles up his ore, which he smelts with charcoal. The molten metal is deposited in a cavity prepared for its reception, and when cold the product is carried home. There a fire is built, which is kept alive by a bellows made of two trunks of hollow trees buried in the ground and having two long sticks as handles. A child works the bellows while husband and wife or son hammer the iron into shape. The knife, cutlass, spear, or agricultural implement produced by this combined labor finds a ready sale throughout the north, and although the workmanship is poor it suits the requirements of that section. The locality of the mines preclude shipments to Bangkok, as it would have to be conveyed to the river on elephants, a method of conveyance too expensive for the commodity.

Tin.—This metal is found in profusion in the Malayan Peninsula, and is worked by the energetic Chinamen. It is generally exported direct to

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Singapore from the locality in which it is mined, after paying the duty to the farmer, and for this reason but little reaches Bangkok, and that in payment of duties, presents, or tribute from the Malay rajahs. The amount exported from Bangkok during the year 1886 was valued at $69,617, an increase of $15,480 over that of 1885. Tin is also found in eastern Siam to a limited amount, but none of it finds its way to the capital.

Copper. — This metal is found in certain localities, especially in the eastern provinces — Champasak, Petchaboon, and Lŏm. In the former province, on the Makong River, there is a place where the natives procure the finest metal, of which they make a coin that passes current in that locality. It is about 2 inches in length, a quarter of an inch in breadth, and shaped like a canoe. The province adjoining that has an iron coin of the same shape, but larger in size. Virgin copper is held in great esteem by many for certain qualities it is supposed to possess when employed as an agent in transmitting metals. Without it is used as a basis the native alchemists claim that gold can not be obtained.

Coal. — Coal is found on the coast and in the interior, but can not be utilized.

Limestone. — This is brought to Bangkok from the interior, and is burned by the Government farmer. The lime is mixed with tumeric, and is used to an immense amount by the Siamese in combination with the betel-nut and *seri* (pepper leaf).

Precious stones. — These come principally from the province of Chantibun; rubies, sapphires, black corundums, topaz, asterias, and other stones being found in that section. The diamond is unknown as a native stone. The sapphire mines to the southward of Chantibun, to which thousands of Burmese flocked a few years ago, have been exhausted. Some valuable stones are reported to have been found there.

PRODUCTS OF THE FORESTS.

The products of the forests, second in importance among the resources of Siam, number many valuable woods, some of which are unknown to western nations. Sapan is largely exported to China and Hong-Kong. Ebony, rose, padoo, yellow, and satin are susceptible of a high polish, and are much used for making furniture and fancy articles. Iron-wood is employed in building the small native craft, and for that purpose can not be excelled. Agilla, or calambac, found in the hollow trunks of trees, is highly aromatic, and used by the natives of Asia for burning as incense. Fine specimens, heavily impregnated with its essential oil, command fabulous prices. It is also used in medicine. Many of the choicest productions of the country can only be obtained in small quantities, and, except in the palace or among the higher nobility, they are seldom seen; they are used principally in the construction of musical instruments.

Teak. — Teak is the most valuable timber of the country. It is utilized in immense quantities throughout the East for house-building. For ship-

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building it is without an equal; is largely exported to China and Europe for that purpose, and for resisting the ravages of the white ants and the effects of the weather it is unsurpassed by any other wood. It grows in the northern part of Siam and Burmah at an altitude of from 1,200 to 1,500 feet above the sea, and reaches its greatest perfection in about one hundred and twenty years. Ten or fifteen years make a good-sized tree that can be cut down, where quality of wood is not an object. It is generally believed that the forests will become exhausted before many years, there being no laws to prevent the indiscriminate felling of timber nor compulsory planting of new trees. The teak district is from 100 to 150 miles in width, the forest being in charge of the governors of the provinces in which they are situated. They are generally leased for a term of ten years, and it behooves the lessee to fell and remove the greatest number of logs possible, he paying a royalty to the governor of $1.80 per log. The trees are girdled and are left standing for two years to allow the sap to run out and the wood to become perfectly dry. If girdled to the heart, and deep holes are bored with an auger, one year will be sufficient. The cutting down takes place in the dry season, and the logs are left until sufficient rain has fallen to allow of their being dragged to the river with the help of elephants. The logs are collected into rafts preparatory to being floated down to Bangkok. For convenience in trading in timber a fixed rate has been established by the foresters to be used as a unit in computing the value of logs. A log may be bought for one, two, three, or more times the amount of the unit for that size of log, and in Bangkok, where the unit (*pikat*) rate is also respected, the price of timber is often six and seven times the unit of the northern rate, which is as follows:

Selling pikat rate.

Wah.	Kam.								
	7.	8.	9.	10.	11.	12.	13.	14.	15.
	Ticals.	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*
3	2	3	4	5	6	7	8	9	10
4	3	4	6	8	10	12	14	16	20
5	4	6	8	10	12	16	20	24	28
6	6	8	10	12	16	20	24	28	32
7	8	12	16	20	24	28	32	36	40
8	10	14	20	24	28	32	36	42	48
9	12	16	22	26	32	38	44	50	60

NOTE.—In this rate the *wah*, or fathom, is the measure of length, and is equal to 78 English inches. The *kam*, or hand, gives the circumference, and is about 4 inches. The value is in ticals, at the rate of 60 cents of a Mexican dollar.

After the logs are made up into rafts they are delivered to the raftsmen to convey to Bangkok. They charge about one-half of the unit of value, and bind themselves to deliver, within a certain time, the number of logs mentioned in a document drawn up by the authorities, of the sizes specified therein. When all is ready the evil spirits of the river must be propitiated,

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which causes an outlay of $3.60 for offerings, and is paid by the owner of the timber. This custom remains in force, despite the efforts of the foreign and educated classes to stop it, and should any one ignore it they would be unable to procure raftsmen. Having floated the rafts down to the timber custom-house, the logs are measured and the duty computed according to the following tariff:

Duty.

Wah.	Kam.								
	7.	8.	9.	10.	11.	12.	13.	14.	15.
	Ticals.	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*
3	1	1⅜	2	2⅜	3½	4	4¾	5⅝	6¾
4	1⅜	2	2⅝	3½	4	4¾	5⅝	7⅜	8¾
5	2	2½	3⅜	4⅜	4¾	6⅜	7⅜	8¾	10⅜
6	2⅝	3⅜	4⅜	5⅜	6⅜	8	8¾	10⅜	12
7	3⅛	4⅜	5½	6¾	8	9½	10⅜	12	14⅜
8	4¾	5⅛	6¾	7⅜	9½	10⅜	12	13	16
9	5⅛	5⅛	7⅜	8¾	10¾	11¾	13⅜	16	19⅜

NOTE. — The duty is computed in ticals and fractions thereof at the rate of 60 cents of a Mexican dollar, or about 45 cents in United States currency.

The above duty can be paid in Bangkok upon obtaining permission from the head farmer. In years of light rain-fall great difficulty is experienced in getting timber to market. The year 1886 was the first year that timber has been floated down in any quantity since 1884. There is one steam saw-mill in Bangkok, belonging to foreigners, and six where coolie hand-labor is employed. The Chinese have nearly a hundred establishments, many of which saw under agreement with foreigners. Square timber sold the past year at 80 cents per cubic foot, and plank at 85 cents. For shipment to Hong-Kong timber sold for $6 per yoke of 169 square feet for prime and $4.20 for second-class wood. The price in London fell last November to £8 10*s.* 6*d.* per ton, owing to the market being overstocked.

FISHERIES.

The fisheries of Siam, next to rice, affects the welfare of the people more than any other food industry, as all, both rich and poor, live almost entirely upon the products of river and sea. Those of the river depend upon the rain-fall, while salt-water fisheries, of which the platoo is the most valuable, look to the northeast monsoon to bring the fish up into the head of the Gulf, as the platoo fish always swim against the wind. The salt-water fisheries, once the most important source of revenue, with the exception of rice, has dwindled down the last three years to one-third its former amount. The platoo fish, which sought the head of the Gulf in large shoals and remained for over six months of the year, have now almost entirely disappeared. Forty or fifty vessels have loaded in a single season with cargoes of these fish for Java. In the year 1885 there was but one vessel and in 1886 but three

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that sailed with fish for that locality. The platoo, formerly the poor man's food, has now increased in price from 1 cent to 8 and sometimes 12 and 15 cents for fifteen fish. The value of the exports of fish from Bangkok from the year 1881 to 1886, inclusive, were as follows: 1881, $1,105,947; 1882, $1,018,822; 1883, $1,280,573; 1884, $550,655; 1885, $357,893; 1886, $495,916.

COMMERCE.

Owing to the lax manner of doing business at the Bangkok custom-house, the latest returns which I can forward in relation to imports, exports, and navigation are for the year 1886.

Shipping.—A few years ago the Siamese had a fleet of merchant vessels, many of them built in the country, which were fine specimens of the handicraft of Siam. The establishment of permanent lines of steam-vessels to Singapore and Hong-Kong has left them but little to do except running along the Chinese coast, braving the typhoons in search of charters. They are dropping off year by year, and it will not be long before a Siamese vessel will be a thing of the past. The lines of steamers increase the number of their vessels as the trade warrants, thus keeping out the sailing vessels. Tramp steamers occasionally appear, and always obtain a cargo.

Imports.—The value of the imports into the port of Bangkok, as declared at His Siamese Majesty's custom-house, was $7,384,718—an increase of 8.121 per cent. over that of 1885. The imports of cotton, linen, and miscellaneous piece and woolen goods amounted to $1,043,598—a decrease of about 16 per cent. as compared with the former year. Of kerosene oil there were 167,824 cases, valued at $275,254, while that of 1885 was 100,779 cases, valued at $178,027—an increase of $97,227 over that of 1885. During the year there were imported by the Siamese Government, for the Bangkok opium farm, 664 cases of opium, valued at $374,914, or $564 per case, showing a considerable falling off both in quantity and the value of the drug. Of flour, 18,500 bags were imported, at $26,041, while in 1885 there were 19,496 bags, at $24,565, making the value for 1886 $1.41, while that of 1885 was $1.26 per bag. Cocoa-nuts, palm-oil, betel-nuts, sugar, molasses, firewood, and bees-wax—all of which, except the first two, are cultivated or manufactured in abundance in Siam—are imported in constantly-increasing quantities, owing to the high rate of duty imposed upon native productions, which range from 6 to 20 per cent. of the value, whereas the import duty is but 3 per cent. ad valorem. Iron and earthenware come under the same category. Of liquors, there were imported to the value of $192,800, of which 66⅔ per cent. came from Hong-Kong and consisted of Chinese *samshu*—vile liquors made of beans, potatoes, and sometimes rice, containing fusil oil in excess, and highly deleterious. Specie was imported to the amount of $1,875,726, as compared with $372,199, the amount exported, showing a balance for the year in favor of Siam of $1,503,527.

Exports.—The exports for the year 1886 were $10,372,846, an increase of over 9 per cent. over that of 1885.

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Rice, the chief export, is put down at 3,618,497 piculs of 133⅓ pounds, valued at $6,542,938, a slight decrease in quantity but an increase of 11 per cent. in price. The exports from the year 1881 to 1886, inclusive, were as follows: 1881, 3,670,773 piculs, $6,001,885; 1882, 3,308,995 piculs, $5,207,335; 1883, 2,620,950 piculs, $4,442,517; 1884, 4,683,360 piculs, $7,083,241; 1885, 3,648,615 piculs, $5,855,186; 1886, 3,688,497 piculs, $6,542,938.

The exports of teak to all parts were 365,349 piculs, valued at $672,986, as compared with 304,762 piculs, at $592,090, for 1885. Of the shipments of 1886, about 45 per cent. went to Europe, and a marked increase is observed to all parts, with the exception of Bombay. Of fish, there were exported 157,163 piculs, at $495,916, an increase of nearly 36 per cent. over that of 1885. Of the products of the forest, otherwise than teak, there were shipped in 1886 $320,080 against $225,392 in 1885, showing an improvement of about 20 per cent. Agilla, rose, iron, padoo, and yellow woods show an increase, while sapan, ebony, mangrove bark, and krangi wood have decreased. Of gums, drugs, and dyes there were exported $385,171, an increase of 3.713 per cent. Products of the jungle show a decrease of 4.5 per cent., being valued at $337,574. Ivory, rhinoceros horns, peacock's tails, deer sinews, tiger's bones and glue, and armadillo skins were exported in excess, while rhinoceros hides, old and young deer's horns, elephant hides, tiger's and other skins, buffalo horns, hides and bones show a decrease. Of live stock, there were exported to the value of $193,818, an increase of nearly 20 per cent. This item includes one elephant valued at $156, and 14,141 head of cattle at $190,160, or $13.40 per head, all of which were shipped to Singapore for consumption at that or transshipment to the neighboring ports or Java.

TRADE WITH THE UNITED STATES.

There have not, for some years, been any shipments of produce from this port to the United States. Kerosene first figured in the return of imports for 1874, in which year there were invoiced 7,935 cases, valued at $26,019, or $3.27 per case. In 1886 there were imported 167,824 cases, valued at $275,254, or $1.64 per case. Of the above amount, 104,494 cases, at $174,010, came directly from New York, being nearly double that of the former year, as is shown by return of imports of kerosene from 1881 to 1886, inclusive. For the last year the price of kerosene has been about $1.80 per case. The highest it ever sold for in Bangkok was during a scarcity which occurred in 1878, when it rose to $12 per case. For some years after its introduction the Siamese considered it dangerous and would not use it, but of late it has been adopted by all, and large quantities are taken into the interior. Lamps, principally of German make, flood the country, their price being so low that they meet a ready sale. The American patent lamp is much approved, but its price is too high, except for the wealthy classes. No doubt imitations will find their way here when the demand requires them. The kerosene sold here is almost a monopoly in the hands of a German firm, who

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import direct from New York, making up their deficits by supplies from Singapore and Hong-Kong. Small lots are often imported by the Chinese from Hong-Kong.

Flour.—American flour finds its way here via Singapore and Hong-Kong, the bulk of it coming from the latter port. It is consumed by the Chinese cake and confection farmers in lieu of the rice flour formerly used by them. The foreign community use but little flour in their households, as they are supplied by the bakers of Bangkok. If a uniform first-class grade was imported direct, the amount of import would increase. As it is, there are so many different grades that the natives, being unable to judge the quality, often buy a worthless article and lose faith in all.

Canned provisions.—The demand for American canned goods is gradually increasing. The foreign stores sell more or less, and the Chinese have large stocks on hand, which are purchased at auctions in Singapore and Hong-Kong. The stocks of American goods are more varied than that of other countries, and will, no doubt, with the exception of certain delicacies from Europe, oust all others out of the market. The missionary families are generally supplied from home with goods of this description. Travelers or dwellers in the northern provinces require large supplies during their stay in the interior, and the influx of foreigners into Siam will ultimately make this branch of business highly lucrative to those who keep good stocks on hand. California wines have long been sold here, and meet with a steady sale. It is generally acknowledged that what they lose in the want of age they gain in purity.

American scales, sewing-machines, clocks, etc., find their way here through various channels. The type-writer is well known in this community, and, although the field is not large, would find a sale if properly introduced. The lack of agents to place desirable goods before the public, to explain, when customers are ignorant, the good qualities of the articles they are selling, and to advance the interests of American commerce, both here and along the Chinese coast, is a want that has retarded the introduction and sale of our productions, and until it is supplied the merchants of the United States will be handicapped by European competition.

STEAM-SHIP LINES.

Bangkok is connected with Hong-Kong by a fleet of six steamers, which run regularly, making the round trip in about twenty-five days. They are of about 600 tons burden and well fitted out. At present the number of passengers is so limited that accommodation gives place to freight, but should the demand arise for more cabin space, the energetic Chinamen, who are the owners of the lines, will, no doubt, adapt themselves to circumstances. A first-class passage from Bangkok to Hong-Kong, or *vice versa*, is $70 (Mexican), being a distance of 1,500 miles. This amount is often reduced by applying directly to the master of the vessel. A number of tramp steamers trade between Hong-Kong and other ports and Bangkok, drawn by the abundant supply of rice. When passage can be obtained on one of these a reduction

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is made in the passage money. Six steamers are now running regularly between Bangkok and Singapore, the emporium of the East. The time occupied on a passage to or from Bangkok is less than four days, while eleven days will complete the round trip; the fare charged is $40 for the passage. Three of the steamers running to Singapore are branch steamers of the "Holt," or Liverpool and China Ocean Steam-ship Company, which also has a branch line running to New York. Goods shipped at the latter port by this line, and invoiced through to Bangkok, will reach here without the delays in Singapore that arise with other lines. A steamer has lately been put into service, and runs between Saigon and this port. She is subsidized by the French Government, but as Singapore has long enjoyed the monopoly of the trade of this section it will be found impossible for the new line to break the well-established order of things. A line of steamers is now running down the coast, connecting the principal points in Siamese territory with the capital. Attempts have also been made to improve the facilities for inland travel, but the low state of the river above Ayuthia for many months of the year almost precludes the possibility, except for very small launches.

POSTAL FACILITIES.

In Bangkok there are two post-offices, and, in connection therewith, letter-boxes have been distributed throughout the city and suburbs, from which collections are made and delivered three times a day. The regulations concerning the postal service are founded on European practice, and the efforts of the prime minister to bring the service up to a high standard are truly praiseworthy. Postage on letters to any part of the city is about 2 cents per half ounce; postal-cards, 1½ cents; books and printed matter, 1 cent per 2 ounces. There are fortnightly, weekly, tri-weekly, and daily connections with various points in the interior, and it will not be long before there will be postal connections with all parts of the country. Postage to all parts of the Kingdom is, for letters, 3½ cents per half ounce; printed matter, 1 cent per 2 ounces; registration, 8 cents. Foreign mails leave on every steamer sailing for Singapore and Hong-Kong, where they connect with the European and American mails. Each steamer arriving in Bangkok has a local (if not a foreign) mail, which arrives in Singapore weekly and at Hong-Kong fortnightly. Postage to union countries is, for letters, about 12 cents per half ounce; to non-union countries, 24 cents; to China, Saranak, Straits Settlements, and North Borneo, 8 cents per half ounce; to union countries, printed matter, 3 cents per 2 ounces; registration, 12 cents.

TELEGRAPH.

The telegraph connects Siam with the outside world by means of two lines, one running east to Saigon, the other west through Burmah. A system of lines connect Bangkok with all parts of Siam (with the exception of certain provinces situated along the west coast); others are now in process of construction. The charges are necessarily high, but they will no doubt be reduced as business increases. The tariff is 8 cents per word to all parts of the Kingdom.

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EDUCATION.

The first attempt made by the Siamese Government to establish a system of schools after the model of Western nations was begun in January, 1879. A school was opened at Nanda Garden palace, in the city of Bangkok, under the direction of a committee of the Government, and placed under the superintendence of S. G. McFarland, D. D., aided by a number of assistant teachers. The pupils the first year numbered about 100, and were selected from the best families of the country. Some were the sons of noblemen and several were the sons of princes. Instruction was imparted in the Siamese and English languages, and as all were beginners in English the instruction was at first rather elementary. Soon afterwards two other schools after the same model were opened, where the English language was taught in connection with the Siamese. Two years ago the Government made additional efforts to open free schools in Bangkok for the common people, where the pupils were taught reading and writing and the elements of arithmetic in the Siamese language. There are now about thirty-five of these schools and an aggregate of about 1,994 pupils. The most of these schools are conducted in buildings connected with their religious temples, but taught by teachers in the pay of the Government. There are two large fine buildings on the bank of the river, a short distance below the King's palace, erected at great expense by the Government and to be devoted to educational purposes, but they are not yet ready for use. These buildings are designed for schools of a higher grade, but as yet education has not advanced to a stage where high schools are required, so the instruction must be elementary.

MISSION SCHOOLS.

Schools have been conducted for many years by the Presbyterian and Roman Catholic missionary societies, and they have educated many of the natives, who have taken a high stand for intelligence and integrity in the country. At present the Catholic schools are supported principally by the Eurasian part of the community. They have one school for boys and one for girls, which are fairly prosperous. There are at present two schools for boys and two for girls under the care of the Presbyterian missionaries, where instruction is given both in the native language and in English. These are doing good work, not only as educational, but as evangelistic and civilizing institutions. They have in all about 200 pupils under instruction. Besides these principal schools there are a number of smaller schools, that are taught by native Christians, under the care of the missionaries; both boys and girls are received into these, and much religious instruction is given, with the elementary education, in the native language.

RELIGION.

Catholic missions.—The first missionaries that came to Bangkok were those of the Roman Catholic religion, and date the establishment of their mission as far back as 1662. A bishop appointed by Rome is at the head,

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and it numbers upwards of twenty priests. They have numerous churches and chapels, but the number of their followers can not be ascertained. They consist chiefly of the descendants of the old Portuguese residents and the greater part of the Cochin-Chinese element of Siam.

American missions.— The first mission established in Bangkok by Americans was the Siamese Baptist, which event took place 1833. It has at present but one place of worship, and is self-sustaining. A branch was commenced in 1835, devoted entirely to the Chinese, and called the "Chinese Mission." There are four missionaries connected with it, who have five churches and five chapels under their charge. The outlying stations are under the superintendence of Chinese teachers. The American Presbyterian mission was commenced in 1840 and now numbers about thirty persons, missionaries and physicians, who are distributed between the four stations—Bangkok, Petchaboon, Chiengmai, and Lakaun; the two latter being situated in the Laos or Shan states of the same name, and distant from Bangkok upwards of 500 miles. This mission has seven churches, and the physicians connected with it are worthy auxiliaries to the missionaries, as they do much good administering to the physical wants of the natives, especially in surgical cases, and by their efficiency and the cures effected have done no little in breaking down the prejudices that the native physicians and priests had endeavored to instill into the minds of the people. Too much credit can not be given to the missionaries; they have labored faithfully in the cause of Christianity, and the seed sown has not fallen on sterile ground.

MARITIME.

The average depth of water on the bar is from 12 to 13 feet, but toward the end of the rainy season, in October and November, the country is flooded by the receding of the waters, and vessels drawing 14½ feet can cross at high spring-tides. In April, when the water is at its lowest, there is but 10½ feet, while at spring low water the depth ranges from 3 to 5 feet, according to the season. Vessels having to land or discharge cargo outside the bar take refuge while doing so under the lee of the island Koh-See-Chang, about 20 miles distant from the bar. It affords a safe anchorage and protection from the black squalls that are frequent during the southwest monsoon, and allows a free handling of cargo throughout the year. Lights have been placed at either entrance, facilitating ingress and exit. On the mainland, abreast of the roads, there is a telegraph station in connection with Bangkok, while there is almost daily steam intercourse with the capital. The cost of lighterage is 5 cents of a Mexican dollar per picul of 133⅓ pounds dead weight. A light-house, called the Regent's Light, is located on the outer edge of the bar, and distant from Bangkok about 30 miles. It has telephone connection with Paknam, about 5 miles within the river's mouth, where messages are telegraphed to Bangkok. Light dues of 1½ cents per registered ton are collected on all vessels loading in the river and three-fourths cents on those loading outside. The only other dues collected by the Siamese Government are for the port

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clearance, which costs $1. From September to December vessels wishing to ascend the river to Bangkok are compelled, owing to the velocity of the current, to employ the assistance of a tug to convey them to their destination. At present there are two vessels, the *Bangkok* and *Charun Poen*, engaged in towing and lightering. At times during the southwest monsoon vessels can ascend the river under sail, but where time is an object it is always best to engage a tug. There are now three persons who act as pilots for the rivers of Siam, and are always to be found in the neighborhood of the light-house.

SCALE OF EXCISE DUTIES.—*On beers and wines, 5 per cent. on the value thereof; on spirituous liquors of all kinds under the strength of 50° of alcohol the same as if the liquors were of a strength of 50°; of and above the strength of 50°, as follows:*

Strength.	Per gallon.	Per liter.	Strength.	Per gallon.	Per liter.
50°	$1 20.0	$0 26.20	76°	$1 82.2	$0 40.16
51°	1 22.2	27.06	77°	1 84.4	41.02
52°	1 24.4	27.22	78°	1 87.1	41.18
53°	1 27.1	28.08	79°	1 89.3	42.04
54°	1 29.3	28.24	80°	1 92.0	42.20
55°	1 32.0	29.10	81°	1 94.2	43.06
56°	1 34.2	29.26	82°	1 96.4	43.22
57°	1 36.4	30.12	83°	1 99.1	44.08
58°	1 39.1	30.28	84°	2 01.3	44.24
59°	1 41.3	31.14	85°	2 04.0	45.10
60°	1 44.0	32.00	86°	2 06.2	45.26
61°	1 46.2	32.16	87°	2 08.4	46.12
62°	1 48.4	33.02	88°	2 11.1	46.28
63°	1 51.1	33.18	89°	2 13.3	47.14
64°	1 53.3	34.04	90°	2 16.0	48.00
65°	1 56.0	34.20	91°	2 18.2	48.16
66°	1 58.2	35.06	92°	2 20.4	49.02
67°	1 60.4	35.22	93°	2 23.1	49.18
68°	1 63.1	36.08	94°	2 25.3	50.04
69°	1 65.3	36.24	95°	2 28.0	50.20
70°	1 68.0	37.10	96°	2 30.2	51.06
71°	1 70.2	37.26	97°	2 32.4	51.22
72°	1 72.4	38.12	98°	2 35.1	52.08
73°	1 75.1	38.28	99°	2 37.3	52.24
74°	1 77.3	39.14	100°	2 40.0	53.10
75°	1 80.0	40.00			

The liquor tariff has long been a source of annoyance to the Siamese Government, and one they could not control, as it was in the hands of foreign subjects, principally of Chinese birth. It interfered with the Siamese liquor farms, was the cause of innumerable law suits, and for some years the Siamese Government has endeavored to enlist the treaty powers in its behalf. At last, in the year 1884, Siam, represented by Prince Krom Mun Narate Rajah Wararidhi, obtained from the foreign powers the concessions it had long sought for in vain, and, with the approval of the diplomatic and consular body of Bangkok, the Government drew up a draft of the new excise law that is for the future to regulate the liquor business.—BANGKOK, SIAM.

JACOB T. CHILD,
Consul-General.

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MINERAL PRODUCTS OF NEW SOUTH WALES.

Although it is very generally admitted that the mineral resources of New South Wales are more extensive and varied than those of any other part of Australasia, for some reason they have not received the attention which they so richly deserve. Many of the mining industries here have been allowed to languish through want of capital and new and improved machinery. This seems to be especially true in regard to the industries of gold and silver mining.

Gold was first found in New South Wales, but the search for it was never prosecuted with the same skill and energy as in Victoria, and the result is that the annual yield of the metal in the latter colony for many years past has been five or six times greater than that of New South Wales. The total yield of gold in Victoria since its discovery in 1851–'52 has been 54,393,182 ounces, valued at £217,572,728 ($1,058,817,680), against only 9,731,213 ounces, valued at £36,058,717 ($175,479,746), for New South Wales. The returns for minerals other than gold in both colonies have not been brought up to a later period than December 31, 1886. The value of all kinds of mineral products in New South Wales for the year 1886 is £2,928,428 ($14,251,194.86), against £2,709,914 ($13,187,795.98) for Victoria. The total value of the mineral products for New South Wales in 1887 was £3,165,938 ($15,407,036), showing an increase, as compared with 1886, of £237,511 ($1,155,846.78). This was mainly due to the increased output of gold, silver, lead ore, coal, and bismuth, and to the rise in the price of copper and tin.

Shale, iron, and antimony showed a decrease. The largest increase was in the products of the silver mines. The yield of gold for Victoria during 1886 was 665,196 ounces, valued at £2,660,784 ($12,948,705.33), against only 101,416 ounces, valued at £366,294 ($1,782,569), for New South Wales. The latter colony, however, more than made up the difference in the value of her other mineral products. For instance, the total value of minerals other than gold in Victoria for the year 1886 amounted to only £11,126 ($54,144), and in New South Wales £2,662,133 ($12,955,270).

The subjoined table shows the value of the various mineral products in both colonies for the year 1886 in English and American currency:

Kind.	New South Wales.		Victoria.	
Gold	£366,294	$1,782,569	£2,660,784	$21,948,705.33
Silver	197,544	958,695	5,284	25,714.00
Copper	167,665	815,941	1,922	9,352.00
Tin	467,653	2,285,832	90	437.98
Coal	1,302,164	6,336,981	107	520.71
Shale	99,976	486,527	.....	.....
Antimony	3,381	16,453	.....	.....
Bismuth	3,870	18,832	.....	.....
Lignite	.....	.....	304	1,479.41
Slates	.....	.....	1,536	7,474.00
Silver-lead ore	294,485	1,433,106	.....	.....
Unenumerated	5,327	25,923	.....	.....
Flagging	.....	.....	1,183	5,756.00

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It will be seen from the preceding table that the value of the mineral products of Victoria, other than gold, is so small as to be scarcely worth taking into consideration. The value of the silver product in that colony for 1886 is given at £5,284 ($26,714.50), but it was not obtained through mining for silver, but at the Melbourne mint during the process of refining gold. Several years ago a silver mine was worked at St. Armand, Victoria, but it proved to be unremunerative, and was shortly afterwards abandoned.

In New South Wales, however, silver fields are being opened up in every direction, and especially in the Barrier ranges. The Broken Hill Proprietary Company's mine, in that district, is said to be the largest silver mine in the world, even surpassing in extent and richness the celebrated Comstock, of Nevada. One of the most important fields in the Broken Hill Proprietary Company's property is the "Mount Eurorie." This field was purchased from the original discoverer in March, 1887, and in less than six months the price of its shares rose to £150,000 ($729,975). The company have secured the services of Mr. W. H. Patton, at a salary of £4,000 ($19,466) per annum. Mr. Patton has had large experience in silver mining in the United States, and was, for several years, manager of a group of the Comstock mines in Nevada. The Broken Hill Proprietary Company, from June 1 to November 30, 1887, crushed 28,799 tons of ore, and obtained 1,267,669 ounces of silver and 6,511 tons of lead. The profits of the mine during that period were £120,201 ($584,958). The average cost for smelting the ore was £2 12*s.* 4*d.* ($12.75) per ton.

The silver mines at Sunny Corner, situated about 127 miles from Sydney, on the Great Western Railway, are also profitably worked. These mines, however, have been noticed at length in my special report on silver, published in No. 57, page 5, of the Consular Reports.

In the Barrier ranges as much as 1,000 tons of rich ore have been taken out of one cutting measuring 35 feet deep, 450 feet long, and 6 feet wide. Some of this ore assayed 1,500 ounces to the ton. A series of lofty silver cliffs, with rich ore cropping to the surface, extend over a distance of 2 miles. In one mine, at a depth of 150 feet, a lode 14 feet wide, of extraordinary richness, has been found. This lode is said to be 20 feet wide in one place, and to extend from northeast to southwest through the entire hill. Mr. Patton, the manager of this property, has been severely criticised for purchasing his mining appliances in England instead of the United States. It is said, however, that all the appliances used are made after American designs, and that the reason for their purchase in England is the cheaper cost of the material there. The report of the New South Wales mines department for 1887 has just been placed before Parliament, but several months will elapse before it is published. Mr. Harrie Wood, under secretary for the mines, has very kindly furnished me with an abstract of the report, and I learn from it that the output of gold is the largest since 1883. Mr. Wood is of the opinion that if sufficient capital is employed in working the mines the yield during the present year will be much larger than that of 1887. He says:

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"It is a long time since so much enterprise has been developed in the search for gold and other minerals, and results indicate not only the value of such enterprise, but the extent and richness of the resources of the colony." He complains that the mining appliances are not, in all cases, equal to a profitable treatment of the deposits, and, as a consequence, some very promising ventures are in a languishing condition.

The total quantity of gold from the colony received into the royal mint, at Sydney, during 1887, was 105,268.71 ounces, as compared with 91,854.72 ounces, the increase being 23,208.98 ounces. The total export of gold during the year 1887 was 10,977 ounces, of a total value of £41,972 ($204,258). The quantity of gold sent to the mint, together with the quantity of gold exported in 1887, was 110,288 ounces, valued at £394,579 ($1,920,218), showing an increase over the output for 1886 of 8,871 ounces.

The number of miners engaged in gold mining during 1887 was 6,060, being 707 less than in 1886. With regard to coal, the output of 1887, as compared with that of 1886, showed an increase of 92,322 tons, while the value of the output increased by £43,276 ($210,602). The exports to inter-colonial ports showed an increase of 49,475 tons, and the exports to foreign ports an increase of 5,082 tons. The total output in 1886 was 2,830,175 tons, valued at £1,303,164 ($6,341,847), and in 1887, 2,922,447 tons, valued at £1,346,440 ($6,552,450). The output of shale was less by 3,553 tons than in 1886, though the quantity of fine silver exported in 1887 was considerably less than in 1886. The quantity of silver and lead ore exported showed an increase in value of £82,381 ($400,907). There is reason to believe that the output for the present year will greatly exceed that of last year. The total quantity of silver exported was, in 1886, 1,015,433 ounces, valued at £197,544 ($534,497); in 1887, 177,307 ounces, valued at £32,458 ($157,553). Silver and lead ore, total exported, 1886, 4,802 tons, valued at £294,485 ($1,434,111); 1887, 12,529 tons, valued at £541,952 ($2,637,408). The output of tin during 1887 did not largely exceed that of 1886, the total value being £525,420 ($2,556,915). With regard to copper, the value of the output in 1887 was £199,102 ($968,929). Only one company—the Eskbank Iron Company—was engaged in making iron in the colony during the year, and the output was 2,746 tons of bar and rail iron, valued at £13,459 ($65,497), and 50 tons of other kinds, valued at £1,083 ($5,269). One hundred and sixty men and boys were employed in the industry during 1887.

SAMPLES OF AUSTRALIAN MINERALS, PRINCIPALLY NEW SOUTH WALES.

I am forwarding with this report a case marked A, containing samples of Australasian minerals for the Department of State at Washington, D. C. These minerals have been collected by me at intervals during my residence here as United States consul. Many of the most valuable specimens were furnished me by the trustees of the Australian Museum and Mr. I. H. Maiden, the curator of the Technological Museum at Sydney.

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No. 1. Copper ore, from the great Cobar copper mine, New South Wales. This mine, which is one of the largest in the world, is situated about 550 miles from Sydney, in the center of the dry district. The average number of men employed in the mine during the last ten or twelve years has been about four hundred. The amount of ore raised from January 1, 1875, to December 31, 1887, was 191,403 tons, which produced 21,866 tons of fine copper, valued at £1,500,000 ($7,299,750). The main shaft is down 600 feet, the first portion being through carbonate ground. Below the 300-foot level the ores are sulphuret, and average 7 per cent. of pure metal. In the lower levels the ore varies from 7 to 50 feet, and in one place is 60 feet across. The chief obstacles in the way of increasing the copper industry in the Cobar district are scarcity of water and the long distance from the seaboard.

No. 2. Tin-ore cassiterite crystals in quartz form; New England district, New South Wales.

No. 3. Silver gossan, with cassiterite, from the Lewis' Pond mine, in the Barrier ranges, New South Wales.

No. 4. Calcareous tuff, formed mostly of débris of shell and a small amount of volcanic matter, found in Lord Howe's Island, a small island belonging to New South Wales, about 900 miles from Sydney. This specimen contains a piece of turtle bone.

No. 5. Tin ore in large rolled fragments from New England (see my report on the tin fields of New South Wales).

No. 6. Auriferous quartz from Tipperary gold mine, Otago, New Zealand.

No. 7. Model of gold nugget, from Australian Museum; weight, 28 ounces 17 pennyweights; found in alluvial deposit at Mount Brown, Albert gold field, New South Wales, March, 1888.

No. 8. Model of Lyee Moon nugget, from Cadia copper mines, near Orange, New South Wales. This nugget was found, with several other of lesser size, at about 20 feet sinking. Mr. H. W. Newton, who presented it to the Lyee Moon Shipwrecked Fund, says: "I have two others from the same place, each weighing from 12 to 15 ounces."

No. 9. Model of Maitland Bar nugget, found at Hargraves, 190 miles northwest of Sydney, at a depth of 5 feet from the surface. The gross weight of this magnificent specimen is 344.78 ounces; quantity of gold of specific gravity, 313.09 ounces, valued at the Sydney mint at £1,236 14*s.* 1*d.* ($6,017.43).

No. 10. Model of large Cadia nugget, obtained at Cadia, near Orange, New South Wales, 190 miles west of Sydney; gross weight, 70 ounces.

No. 11. Model of Temora nugget; gross weight, 168 ounces 12 pennyweights; found at Temora, New South Wales, 260 miles south of Sydney, in 1884. The under secretary of mines reports that in one year there were found at the Temora gold field twenty-one nuggets, varying in weight from 5 to 175 ounces 15 pennyweights, making in all 675 ounces 14 pennyweights, valued at £13,881 17*s.* ($67,556).

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No. 12. Gossan; found at the Bulga mine, near Orange, New South Wales, in 1887, at the beginning of the first working. There are three valuable gold mines in the neighborhood, viz, the Ophir, Forest, and Wentworth.

No. 13. Native antimony, from the New Reform gold mine, on the main road from Bathurst to Orange, New South Wales, 200 miles west of Sydney. Professor Liversedge, in his valuable and interesting work entitled "The Minerals of New South Wales," published in 1882, says that he has been unable to find any authentic record of native metallic antimony having been discovered in New South Wales (native antimony, however, has since 1882 been found in various parts of the colony). Antimonite stibnite or antimony glance is found on the Clarence and Patterson Rivers, in mineral veins, in massive state and, occasionally, in rolled crystals. A specimen of antimonite from Wellington district was analyzed by Professor Liversedge, which showed 67.74 per cent. of metallic antimony, with traces of silver and gold. The under secretary of mines states that ore containing antimony, gold, and silver can not be treated locally and is sent to Europe for treatment. Dr. Claudet, assayer of the Bank of England, gives the following analysis of New South Wales antimony ore sent to him for examination: Antimony, 61.50 per cent.; gold, 3 ounces 12 pennyweights; silver, 1 ounce per ton. Messrs. Johnson, Motley & Co.'s analysis of New South Wales antimony was 41 per cent.; gold, 2 ounces per ton.

The subjoined table, furnished me by the under secretary of mines, shows the results of various assays of this mineral at the mines department during 1887:

Locality.	Description.	Antimony, per cent.	Gold, per cent.	Silver, per cent.	Lead, per c't.
			Oz. dwt.	*Oz. dwt.*	
Bellinger River....	Sulphide of antimony, Peckett Hill	69.97			
Coolongolook	Stibnite and quartz, from Wanga, 6 miles from Coolongolook.	31.29			
Carangula	Stibnite and a little quartz	61.55	0 5		
Carangula	Stibnite and cervantite	45.0	0 5		
Crudine	Breccia, from Crudine antimony lode	48.8			
Gulgong	Antimony oxide	68.9			
Gulgong	Antimony breccia, from head of For l's Creek	36.3			
Gulgong	Stibite and a little quartz, from 2 miles from Gulgong.	27.5			
McDonald River...	Quartz and stibnite, from the head of the McDonald River.	43.75			
Marulan	Sulphide and oxide of antimony with lead and quartz, Carrington mine.	16.75	2 17	164 3	29.27
Razorback	Oxide and sulphide of antimony and a little quartz, from between Razorback and Crudine Creek, about 9 miles from Razorback.	67.30			
Razorback	Ferruginous sulphide and oxide of antimony, from Back Creek, about 8 miles from Razorback.	55.33			
Sofala	Quartz and stibnite	46.3	0 14½	0 7⅝	
Shoalhaven	Quartz and stibnite	28.52			
Talbragar	Oxide of antimony	70.4			
Temora	Quartz and stibnite	34.14	3 16		

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No. 13. Tin rock, composed principally of quartz feldspar, decomposed feldspar, silicate of allumina yellowish, and oxide of tin, from New England district.

No. 14. Tin-stone cassiterite; New England, New South Wales. This stone contains 78.67 per cent. of tin and 21.33 per cent. of oxygen. In the same district are found very many well-developed crystals of tin of large size.

No. 15. Mount Pleasant, Fairfield, New England, New South Wales ore. This specimen, although showing no gold to the naked eye, is out of a lot yielding from 60 to 100 ounces per ton.

No. 16. Chloro-bromide of silver, from Lewis' Pond mine, New South Wales, at 87 feet level; assay, 79 ounces silver and 1 ounce 11 pennyweights 14 grains gold; sample assay, 1,200 ounces of silver to the ton.

No. 17. Schist, containing pyrites, gold, and silver from western wall of Lewis' Pond lode, 40 feet in width.

No. 18. Decomposed quartz, containing chloride of silver, out of drive bottom of wing, 117 feet northwest, Lewis' Pond mine, assaying as high as 5,000 ounces of silver to the ton; average assay of ore, 90 ounces of silver and 1 ounce 3 pennyweights of gold.

No. 19. Gray carbonate of lead; Lewis' Pond mine, New South Wales; bulk assay, 105 ounces of silver, 7 pennyweights 3 grains of gold, and 48 per cent. of lead.

No. 20. Marble, from Lewis' Pond mine, used as flux. All the Lewis' Pond specimens, with the exception of No. 3, were furnished me by Mr. J. B. Beauregard, an American citizen, who for a number of years has taken great interest in Australasian minerals. Mr. Beauregard was one of the original promoters of the Lewis' Pond Mining Company, and is now the largest shareholder in it.

No. 21. Marble, from Oaklands, Macleay River, 250 miles north from Sydney. One of the specimens has been polished at the department of mines, and shows with fine effect the variegated colors of the shell-like formation. Mr. Enoch Rudder, to whom I am indebted for these specimens, says they were taken from the limestone formation of the south bank of the Macleay River. The formation extends from Piper's Creek to Willi Willi, a distance of 30 miles. Mr. Rudder says, further, that the marble will admit of quarrying for it on an extensive scale and that the seams are free from flaws. The country north of the limestone is composed principally of shale, and to the south of conglomerates.

No. 22. Pyrites, from Broken Hill Proprietary Company's property, New South Wales; a very rich specimen.

No. 23. Zircon; Tilbuster Creek, New England district, New South Wales.

No. 24. Sapphire; Capés Creek, near Inverell, New South Wales, 383 miles north of Sydney. Diamond and tin mining are carried on in the neighborhood. All the diamonds found in the colony are very small in size. Mr. W. H. Henderson, late superintendent of diamond drills, who has done

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much to promote the mining industries in Australia, is of opinion that the matrix of the diamond starts in the dividing ranges, and that the stones found have been washed therefrom. The heavier drifts, he says, have not yet been reached. All the gem stones as yet discovered in New South Wales, with the exception of the diamonds, have little or no commercial value.

No. 25. Mount Morgan ore, from Mount Morgan gold mine, Queensland. This ore is very dark and shows very little gold, but the mine from which it is taken is one of the most celebrated in the world. It is situated on the River Dee, 25 miles from Rockhampton, Queensland, and is literally a mountain of gold. Once the cup of a geyser, the hill or mount has been built up by the mineral deposits of the water. The value of the shares of the company working the mine is estimated at £10,000,000 ($48,665,000). There are no underground workings or shaft sinkings, only ordinary quarrying, and all the stuff yields by average not less than 3 or 4 ounces of gold to the ton. (See descriptions of Mount Morgan mine in my report on Australasian Gold Fields, Consular Reports, 1887.)

No. 26. Phacolite and Phillepsite, from Collingwood, Victoria.

No. 27. Fossiliferous marl, near Hamilton, Victoria.

No. 28. Stream tin; Bridgewood mine, Uralla, New South Wales, 300 miles north of Sydney.

No. 29. Lignite, from Inverell, New South Wales.

No. 30. Fossiliferous marl clay; Muddy Creek, near Hamilton, Victoria.

No. 31. Phacolite; Collingwood, Victoria.

No. 32. Iron ore; Mittagong district, New South Wales. The deposits at Mittagong occupy an area of 37 acres. They occur in five different localities, situated in a radius of 4½ miles from the old Fitzroy smelting works, near the town of Mittagong. The deposit of ore at Fitzroy occupies an area of 4 acres, and is estimated to contain 439,000 tons, which would yield 179,940 tons of pig-iron. Coal of good quality has been found close to the deposit of iron ore. Deposits of iron exist in the Goulburn district and elsewhere in New South Wales, especially in the mountain districts. It is found at Wallarawang, Mount Lambie, Mount Tama, Mount Kiera, on the coal ranges of the Clarence River, and in the Bogan River Valley. The ore occurs in the form of magnetite or magnetic oxide and as brown hematite. The former is the richest of all iron ores. It is stated that the clay-band deposits, which in New South Wales are brown hematite, contain on an average 50 per cent. of iron, while the English clay bands are carbonates, and average only 30 per cent. of the metal. The following is an analysis of a sample of ore from Wallarawang, New South Wales:

	Per cent.
Ferric oxide	75.52
Ferrous oxide	1.01
Phosphate oxide	38
Sulphur	03
Silica	4.35

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MINERAL LEASES.

The mining laws of New South Wales are encompassed with many difficulties. For instance, the Government lands can not be purchased outright for mining purposes, as in the United States, but is obtained by a system of licenses and leases. Authority to dig for gold here costs 10 shillings ($2.43) per year, and it gives the possessor a right to take up ground for mining, in a town a quarter of an acre, or outside of a town an acre of land, for a business site. Mineral licenses are also obtained at a cost of £1 ($4.86) per acre, entitling the holder to from 40 to 640 acres of Crown land, for the purposes of searching for minerals other than gold. The laws regulating the rights of miners are so complicated that a determined effort has been made during the last few years to reform them. It was very difficult for a miner to understand the question of forfeiture, or to obtain information as to what land he could occupy. At the beginning of the present year the Hon. Francis Abigail, minister for mines, caused to be published in the Government Gazette particulars of all gold-mining leases of Crown lands in force in the colony on December 31, 1887. The mineral acts under which these tenures are held are given in detail. The publication, notwithstanding its great value, is too voluminous to be reproduced here, but I have, with the assistance of Mr. James Wilson, of this city, who has given much study to the land laws of Australia, prepared the following summary of these leases. Some idea of the amount of time, study, and labor employed in the preparation of the summary can be formed from the statement that it was necessary to take up in detail all the various land acts of the colony, and separate the number of leases under each act from 1861 to the present time.

It will be seen from the following table that the public can arrive at a general knowledge of land held under lease, while the dates of these leases afford an indication of the length of the present tenure and their general conditions, as specially provided in all the acts. It is well enough to mention here that the leases may be renewed when the time for which they are held shall have expired. By the mining act of 1874 mineral leases are subject to 5 shillings ($1.21) per acre per annum rent, payable in advance on or before the 30th of November of each year, subject to continuous working, the employment of a certain number of hands, and the expenditure of a sum not less than £5 (24.33) per acre during the first three years, and the employment of an additional number of hands for the remainder of the lease. The duration of leases for minerals, other than gold, may be for any period not exceeding twenty years, but may be terminated upon giving three months' notice to the minister for mines, but no rental is returned. A gold mining lease may be granted for a term not exceeding fifteen years, and the rent, payable yearly in advance, is at the rate of 20 shillings ($4.86) per acre, or such other rent and royalty as may be prescribed, and under such covenants as may be contained in every such lease, or such other covenants and conditions as the governor shall think fit to impose. Areas are restricted, and can not exceed 640 acres for coal or shale, 80 acres for any other mineral except coal or shale, and 25 acres for gold.

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Summary of analysis of leases printed for public information in the Official Gazette of New South Wales, April 19, 1888, in force December 31, 1887.

Description of title.	No.	Area.	Leases dated from—												
			Ante.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
		A. R. P.													
Mineral leases under act of 1861	11	2,641 1 33	4	7											
Mineral leases, mining act of 1874	977	35,662 1 33	1	2	8	5	11	20	40	24	64	160	251	341	50
Converted authorities, mining act of 1874	10	20,164 0 19											10		
Mineral leases under amendment act of 1884	265	10,386 2 5									3	22	131	99	10
Total mineral leases	1,263	68,854 2 10	5	9	8	5	11	20	40	24	67	182	392	440	60
Gold mining leases, act of 1874	504	3,447 3 21	3		5	4	4	24	15	31	43	43	98	227	7
Gold mining leases, act of 1884	49	302 2 36										3	10	36	
Total gold mining leases	553	3,750 2 17	3		5	4	4	24	15	31	43	46	108	263	7
Grand total	1,816	72,605 0 27	8	9	13	9	15	44	55	55	110	228	500	703	67

NOTE.—Also three leases under gold fields act of 1866; area, 2,300 yards; dated 1877.

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By the act of 1884, now in force, leases for mining for minerals other than gold were issued under regulations of March 16, 1866. Such leases are subject to a rental of 2 shillings (48 cents) per annum per acre, and at less rates without the right to occupy surface ground. On May 2, 1888, the Government issued regulations repealing the regulations of March 16, 1866, and substituted the following: 1. To occupy the surface, or some portion thereof, are subject to 5 shillings ($1.21) per acre rental. 2. Without right to occupy any surface, may be reduced to 2*s.* 6*d.* (61 cents) per acre rental. 3. For land wholly under water, 1*s.* 6*d.* (36 cents) per acre rental. 4. For coal mining, as per one, two, and three, 2 shillings (48 cents), 1*s.* 6*d.* (36 cents), and 1 shilling (24 cents), respectively. For gold mining, 20 shillings ($4.86) per acre per annum.

Subject to royalty.—Special leases for gold mining are provided for a term of not less than one year, and, in extent of land, demised in proportion to the number of men to be employed, as specified in the application and proposed machinery, not exceeding 2 acres for every man employed and 1 acre additional for every £200 ($973.30) expended in machinery, etc., provided that the area shall not exceed 100 acres. These terms seem to be for the encouragement of prospecting for minerals. The labor conditions and term of lease are specified in every lease, and on failure to comply with any or all conditions the lease may be canceled. The mining acts are locally administered by wardens and assessors.

The Government has intimated its intention to introduce a new mining bill to repeal the existing acts and place the mining industry on a better footing with regard to private property, gold-field reserves, etc.

MINING MACHINERY AND APPLIANCES.

The imports of mining machinery into New South Wales have largely increased during the last ten or twelve months. Heretofore this colony has been more backward in the use of this kind of machinery than Victoria, Queensland, and other portions of Australasia; but the outlook is much brighter now, on account of the new impetus given to mining industries in every part of the colony. Until recently all the gold mining was confined to surface or surface reef mining, and when such mines were worked to a certain point, mainly to a water-level, or beyond the reach of oxydation, they were invariably abandoned. In fact, it was not until the discovery of silver ore, and the American method of treating it, that anything approaching mineral research was attempted here. In Victoria the value of gold-mining machinery is estimated at £1,797,925 ($8,749,751), of which £1,477,796 ($7,191,473) is used in quartz mining alone, and the remainder, £320,129 ($1,557,627), for alluvial mining. In New South Wales, however, the total value of both quartz and alluvial gold-mining machinery is only about £350,000 ($1,703,275). The value of this kind of machinery has been largely increased in Bathurst, Lachlan, Tumut, Mudgee, and Adelong, New South Wales. Messrs. Park & Lacy, H. P. Gregorey & Co.,

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and other dealers in mining machinery, report that there is a steady demand for American rock drills, concentrators, amalgamators, etc. The concentrators introduced here from the United States can be applied with equal success to dressing all kinds of ores. The dressing surface of one, called "The True Vanner Machine," consists of a flanged rubber belt, which revolves slowly against a descending stream of sand and water, and receives a continuous lateral vibratory motion that keeps the whole volume of sand and water in gentle movement.

Mr. George G. André, F. G. S., member of the Society of Engineers of London, in a recent paper states that the side motion of the belt, the vanning, is the most important feature of this machine, and, in connection with the perfect surface of the rubber belt itself, is the real element of the success of the vanner. The Brunton belt, in England, and the Hoffman, in Germany, are known as slime dressers. The first is merely a self-discharging inclined plane in principle; the last, receiving in addition a succession of blows, is an improvement on the former, being an intermediate stage between it and the present vanning machine. The difficulty in making the belts last in the Hoffman machine was, according to the statement of the well-known manufacturing firm at Kalk, near Cologne, the reason of the belt dropping out of use. In the True Vanner no such difficulty occurs; the belt is of long duration, the only appreciable wear being caused by the attrition of particles of ore passing over its surface with the water, and this wear, which is slight, is remedied by the occasional application of a liquid rubber paint. That the lateral motion is in itself preferable to percussion few practical dressers will deny. The capacity of the machine is from 5 to 8 tons of rock per twenty-four hours. The True Vanner is recommended in all cases except where chlorides predominate.

A number of concentrating machines have been manufactured in Victoria and in this colony after American patterns, several of which are used at Mort's dock in this city, but they are much more expensive than those made in the United States. I have not heard of any colonial concentrators being used in the mining districts.

A machine called the "Alve's Patent Gold and Pyrites Concentrator" has been tried at the Eureka mine, south Australia. The following is a description of it: At the end of, and attached to the ordinary tables, are boxes about 6 feet in length and 2 feet in breadth; two rows, of four each, are placed side by side. The first of these boxes has a fall of 2½ inches to 1 foot. The heavy "slime pyrites" is generally found on this box. The next box or table has a ¼-inch less fall; the next has about 1¾ inches, and the next 1½ inches. The bottoms of these tables are covered with a strip of baize; each table is divided so that the water course, instead of being 2 feet wide, is about half that width. Placed on the top of the baize are wire frames, two to each table, about 1½-inch mesh, and so woven that each corner of the mesh is alternately high or low. The action of water passing over these cavities or ripples keeps the sand in a continuous circular motion,

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while the heavier portion settles. About 80 per cent. of the gold remains on the first table. Each table of either row or set is fitted alike. The water at the head of the tables is so regulated that it flows through small apertures on each table. Every hour the strips of baize mentioned are washed. A "plug" suffices to stop water flowing on the blanket about to be washed. A trough placed at the end catches water, etc., from all the tables, carrying it to the amalgamator. The concentrating portion present a new and important feature by the addition of wire frames, and many thousands of "ripples" are caused thereby. Anything which will precipitate remains on the blanket in ripples. Another noticeable feature is the lesser fall allowed each succeeding table, the heavier portion pyrites remaining on the first table having a fall of 2½ inches to 1 foot from that. The residue, of course, being lighter, its course for the next 18 feet is retarded accordingly. The Parnell process, for the treatment of pyrites and refractory ores without chemicals, which has attracted more or less attention here during the last ten years on account of its repeated failures, is now, it seems, in a fair way to prove successful.

A company has been started in London for the purpose of manufacturing the machinery for the process on a large scale. A testing plant has been established at Pyrmont, near Sydney, and its working is said to give every satisfaction. The process is the invention of an Australian lady, Mrs. E. B. Parnell, who is now in London superintending the interests of the company. I visited the testing plant at Pyrmont on Tuesday, the 7th instant, with Mr. W. B. Henderson and several other mining experts. The manager, Mr. E. C. Davis, took great pains in explaining the working of the plant, which he pronounced to be a complete and perfect model of mechanism. There appears to be as many as seven or eight different appliances, all of which have been patented in the colonies and in various European countries. One or two of the appliances have also been patented in the United States. Mr. Davis informed me that the business carried on at Pyrmont is purely a testing one, and for the purpose of exhibiting the results to mine owners who send their ores to Sydney for treatment. The result in gold is paid for at mint prices, after deducting the cost of labor and material. Certificates of fire assays and of the results of the working trials are issued to the mine owners. The plant appeared to work smoothly in every part. Upon the ground were a considerable number of bags containing pyrites, tailings, and other material, not usually regarded as of any special value by New South Wales miners, waiting to be operated upon, and the manager stated that larger consignments were expected during the week. The ore operated upon during my visit averaged 76 ounces of gold to the ton. The following table, which I have been permitted to copy from the register of the company, shows in detail the results of the working trials at Pyrmont, Sydney, from November 3, 1885, to January 12, 1887, with the names of the districts and the colony from which the ore, tailings, etc., were taken:

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Working trials and results of treatment of pyrites, etc., under the Parnell process, done at the works of the Parnell Pyrites Patents Co., Limited, Pyrmont, Sydney, New South Wales.

Date.	Mine.	District and colony.	Weight of consignment.	Contents by fire assay per ton of ore.	Result of treatment per ton of ore.	Value per ounce.	Remarks.
1885.			*T. Cwt. Grs. Lbs.*	*Ozs. Dwt. Grs.*	*Ozs. Dwt. Grs.*	*£ s. d.*	
Nov. 3	Black Jack Gold Mine Company.	Ravenswood, Queensland	2 0 0 0	5 10 10	5 5 20	4 1 6	This was heavily charged with copper and zinc-blende. The loss amounted to 4 dwt. 18 grs.
1886. Jan. 28	Unknown	Orange, New South Wales	1 0 0 0	28 14 20	28 11 10	3 19 0	A good deal of blende, arsenic and sulphur; no copper; loss, 3 dwt. 10 grs.
June 9	....do	Bundaberg, Queensland	1 0 0 0	1 6 0	1 6 18	3 15 0	Tailings, unconcentrated; loss, 1 gr., and was the first parcel through the present plant.
Aug. 17	United Miners (tailings)	Braidwood, New South Wales	5 0 0 0	1 7 19	1 4 0	3 12 6	Poor in gold; heavily charged with copper and zinc-blende; valuable to show how closely refactory pyrites can be treated; loss, 3 dwt. per ton.
31	Sunny Corner (tailings)	Bathurst, New South Wales	2 0 0 0	1 5 10	1 4 0	3 17 5	Worth concentrating if they can be purchased; loss, 1 dwt. 10 grs. per ton.
Sept. 24	Unknown	Berrington Diggings, Copeland North, New South Wales.	0 2 2 20	14 17 2	14 13 8	3 15 0	Arsenical pyrites concentrated; loss, 3 dwt. 18 grs. per ton.
Oct. 7	New Reform	Orange, New South Wales	2 8 3 8	4 11 11	4 4 10½	3 15 0	Magnetic iron carrying neither arsenic nor sulpher, and bad to treat; loss, 7 dwts. per ton.
30	Unknown	Rockhampton, Queensland	0 2 2 20	212 2 19	212 1 16	4 4 0	Ironstone, much resembling the ore from Mount Morgan; loss, 1 dwt. 3 grs. per ton.
1887. Feb. 23	Iron-clad	Cargo, New South Wales	5 3 0 0	1 4 13	1 2 11	4 0 0	This ore had already been treated by chlorination; loss 2 dwts. 2 grs. per ton.
		The following parcels were under one hundred-weight.					
Mar. 25	Unknown	Adelong, New South Wales		1,143 16 3	1,143 14 0	3 17 0	This sample was antimony; loss, 2 dwts. 3 grs. per ton.
31	Sir Garnet Wolseley	Sofala, New South Wales		16 6 5	26 3 18	3 18 6	Arsenical with zinc; loss, 2 dwts. 11 grs. per ton.
April 15	Lewis Ponds	Orange, New South Wales		4 1 15	4 1 15	3 19 0	Red gossan ore, containing some ounces of silver, but only worked for gold; loss, nil.
20	....do	....do		4 15 6	4 15 6	3 19 0	
25	Dargues	Braidwood, New South Wales		5 8 21	Gold, 4 1 15; Silver, 1 5 0		Unconcentrated ore; loss on bullion assay, 2 dwts. 6 grs. per ton.
28	Unknown	Nowra, New South Wales		4 1 15	4 0 12		Was very good for treatment; loss, 1 dwt. 3 grs.
May 9	Iron-clad	Cargo, New South Wales		70 15 12	70 12 10	4 0 0	A good deal of copper and zinc; loss, 3 dwts. 2 grs.
10	....do	....do		68 1 2	67 18 10	4 0 0	A good deal of copper and zinc; loss, 2 dwts. 16 grs.
12	....do	....do		57 9 9	57 8 1	4 0 0	A good deal of copper and zinc; loss, 1 dwt. 8 grs.
June 12	Sir Garnet Wolseley	Sofala, New South Wales	0 10 0 0	4 15 23	4 12 20	3 18 6	This was a lot of blanketings fairly good to treat; loss 3 dwts. 3 grs. per ton.

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It will be seen from the preceding table that the ores operated upon were in most cases of an unusually refractory nature. Mr. S. S. Vale, late superintendent in New South Wales of the English and Australian Copper Company, Limited, in a recent report states that the Parnell process was designed for the treatment of all highly-sulphurous ore or pyrites containing sulphides of various metals, such as iron, copper, zinc, etc., and also arsenic carrying gold and silver, which have hitherto proved intractable, or so much so as to render it impossible to obtain the whole of the gold contents. It is claimed by the company that the cost of treatment is very moderate and does not exceed £1 10*s.* ($7.29) per ton of ore. In a large plant it would be about £1 5*s.* (6.08) per ton. The plant is said not to be adapted to ores containing a considerable amount of lead. Ores composed of arsenic, sulphides of zinc, copper, and iron, Mr. Vale says, were never before treated so successfully as in the Parnell process, and that no better method could well be devised for the treatment of pyrites from gold-bearing quartz, as by ordinary crushing the fine gold can be obtained by amalgamation, and the tailings passed over concentrators and the pyrites gathered and treated on the ground.

The process consists, first, in calcining the ground pyrites to expel arsenic and free sulphur and to convert iron, copper, and zinc into sulphates soluble in water; second, lixiviation in boiling water to dissolve the sulphates, which are removed by filtration and the residue washed, leaving the gold free for amalgamation; third, amalgamating the cleansed matter in the usual way. It is claimed that any metals of sufficient value in the pyrites, such as silver and copper, can be saved without difficulty. One of the appliances connected with the process is a quicksilver-saving apparatus. When large masses of galena are associated with the pyritous ores, the ore is hand sorted and the galena is coarsely crushed and roasted separately from the pyrites. Antimony ores containing gold are also coarsely crushed and roasted to oxidize the antimony, and the residue boiled and treated to recover the gold. The operations of the company will be watched with no little interest throughout Australasia, as the process deals especially with material which has hitherto been regarded as unworkable.—SYDNEY, NEW SOUTH WALES, *May 14, 1888.*

G. W. GRIFFIN,
Consul.

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